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THE ST. LAWRENCE SEAWAY AND POWER PROJECTS

In April 1959, a 400-year-old dream was realized when ships began using the St. Lawrence Seaway. In the broadest sense the Seaway is a deep waterway extending some 2,300 miles from the Atlantic Ocean to the head of the Great Lakes in the heart of North America; strictly speaking, however, within the meaning of the legislation that permitted construction to begin, the St. Lawrence Seaway extends from Montreal Harbour to Lake Erie.

In the early part of the sixteenth century, the French explorer Jacques Cartier was turned back by the turbulent waters of the Lachine Rapids just west of what is now Montreal and forced to abandon his dream of finding the Northwest Passage and the route to the Far East. At various times during the intervening years, canals have been dug and locks built round the natural barriers to navigation that exist in the St. Lawrence River and the waters connecting the Great Lakes in the effort to make possible the use of the economical route provided by the Great Lakes basin for the transportation of goods in and out of this important part of the continent. The first such canals, built in 1783, were only two feet deep. By 1850, nine-foot canals had been completed in Canada right through to the Upper Lakes. By 1900, 14 feet was the regulation depth in these canals, though certain of them -- at Sault Ste. Marie, for example -- were deeper. In 1932, Canada completed the Welland Canal, 27 miles in length with a depth in some reaches of 25 feet. This canal and its eight locks overcome the difference in level of 326 feet between Lake Ontario and Lake Erie. Its construction may be considered as the first step -- a decisive one -- in the construction of the present Seaway.

The needs of commerce pointed to the desirability of providing even greater depths in the St. Lawrence canals, locks and connecting channels, and by 1959, as a result of the joint efforts of the Canadian St. Lawrence Seaway Authority and the United States Saint Lawrence Seaway Development Corporation, 27-foot depths existed from Montreal to Lake Erie. The improvements to the Welland Canal between Lake Ontario and Lake Erie round the barrier of Niagara Falls have been the sole responsibility of the St. Lawrence Seaway Authority. Deepening the channels above Lake Erie to Seaway standards was done by others, and now 27-foot depths are available into the Upper Lakes.

While the Seaway development was in progress, the Hydro-Electric Power Commission of Ontario and the Power Authority of the State of New York completed works in the International Rapids Section of the St. Lawrence to convert into electricity the energy represented by the rapids west of Cornwall. The Barnhart Island-Cornwall generating plants produce 840,000 kw in each country.

History of negotiations

Negotiations between Canada and the United States aimed at developing these twin resources of the St. Lawrence River and the Great Lakes for the benefit of both countries began toward the end of the last century, though, as has been shown, piecemeal development of navigation by Canada in the Great Lakes basin had started centuries earlier. Power was first developed at Niagara at the turn of the century. In 1912, the Canadian Government decided to improve the Welland Canal to provide 27-foot depths with locks 800 feet long and 80 feet wide. Work began in 1913, was suspended during the First World War, and was finally completed at a cost of approximately $132 million in 1932. In the same year, Canada and the United States signed the St. Lawrence Deep Waterway Treaty, which was to provide for the joint development of the resources in the Great Lakes basin in the interests of both navigation and power. In 1934, this treaty was rejected by the United States Senate.

After further studies, and impelled by the power needs created by war production, Canada and the United States signed the Great Lakes-St. Lawrence Basin Agreement in 1941, with the same object in view. This agreement, which, like its predecessor, was submitted to the United States Senate for approval, remained unratified up to 1949.

The 1941 agreement was intended, among other things, to permit the development, as a joint project, of the power resources latent at Niagara Falls, where, over the Falls alone, a 160-foot drop is available for the production of power. Since there was little prospect by 1949 that the agreement would be approved, a separate treaty was signed and ratified in 1950 setting forth the principles under which the water in the Niagara River could be turned into power by Canada and the United States.

At about the same time, the Canadian Government made it known that Canada was prepared to proceed with an "all-Canadian" waterway as far west as Lake Erie once the means had been found to have the power works constructed concurrently in the International Rapids Section of the St. Lawrence River. By December 1951, the St. Lawrence Seaway Authority Act and the International Rapids Power Development Act had been approved by the Canadian Parliament, the former authorizing the construction of navigation works on the

Canadian side of the river from Montreal to Lake Ontario as well as in the Welland Canal and the latter authorizing the Hydro-Electric Power Commission of Ontario (HEPCO) to join a United States power-generating entity in constructing the necessary power works in the International Rapids Section of the St. Lawrence River.

In 1952, in order to get the power project under way, the Canadian and United States Governments submitted joint applications for the approval of the International Joint Commission to the proposed power development, on the understanding that the Canadian Government would undertake to construct more or less concurrently, and to operate, all the works necessary to insure uninterrupted 27-foot navigation between Montreal and Lake Erie. Approval of this proposal was given by the International Joint Commission in an order of approval dated October 29, 1952.

In 1953, the U.S. Federal Power Commission granted a 50-year licence to the Power Authority of the State of New York (PASNY) for the development of the United States half of this power project. Because the order granting this licence was contested in the U.S. courts, it was not until June 1954 that PASNY had clear authority to join HEPCO in making a start on these works.

In the meantime, however, the United States Congress had enacted the Wiley-Dondero Bill (P.S. 83-358), which authorized and directed the Saint Lawrence Seaway Development Corporation to construct, on United States territory, all the 27-foot navigation facilities required to get shipping round the navigational barriers in the International Rapids Section. The situation thereby created required close consultation between the Canadian and the United States Governments in order to avoid a duplication of locks and canals. A number of compromises and accommodations were eventually worked out and embodied in a series of exchanges of notes, according to which the United States agreed to build a canal and two locks on United States territory to by-pass the Barnhart-Cornwall generating dam at the foot of the Long Sault Rapids and, in addition, to do some essential dredging elsewhere, while Canada agreed to build a lock and canal round the Iroquois Control Dam some 30 miles upstream and, in addition, to complete to a common standard all the necessary navigation facilities in Canadian territory, i.e. between Montreal and Cornwall and in the Welland Canal. The estimated cost to the United States of these works was about $100 million, while the estimated cost to Canada was to amount to about $200 million.

The first sod on the St. Lawrence Power Project was turned on August 10, 1954. Work on the Seaway began in September of that year. The Iroquois Lock was in regular use by May 1958 and the two United

States locks from July 4. First power came from the international power-houses on the latter date. Through-transit of the St. Lawrence Seaway began April 25, 1959, and the Seaway was opened officially by Queen Elizabeth II and President Dwight D. Eisenhower on June 26 of that year.

Navigation facilities

Some idea of the magnitude of the work undertaken can be obtained by taking an imaginary voyage on a ship westbound from Montreal.

a) *St. Lambert Lock:*

Opposite the pool of Montreal Harbour can be seen the protecting dyke of the channel giving access to the Seaway, which begins just east of the Jacques Cartier Bridge, passes beneath the bridge and extends for three miles before reaching the first lock of the Seaway, the St. Lambert Lock, at the southern end of the Victoria Bridge. (At the Victoria Bridge are lift-spans and a system of rail and road traffic diversion.)

The St. Lambert Lock raises ships some 15 feet from the level of Montreal Harbour to the level of Laprairie Basin, through which the ship channel sweeps in a great arc eight and a half miles long between its protecting embankments to the second lock.

b) *Cote Ste. Catherine Lock:*

The Cote Ste. Catherine Lock, like the other six new Seaway locks and the seven lift-locks on the Welland Canal, has been built to the following standard dimensions: length 768 feet; length between stop signs in lock 715 feet; width 80 feet; depth over sills 30 feet.

This lock, to fill which 18.3 million gallons of water are needed, can be filled or emptied in approximately seven minutes. It lifts ships from the level of Laprairie Basin 33 to 35 feet to the level of Lake St. Louis. Its function is to by-pass the Lachine Rapids. Beyond it, the channel runs seven and a half miles before reaching Lake St. Louis.

Over this channel, at one point, tower the piers that give the Honoré Mercier Highway Bridge 120 feet of clearance for ships. Further upstream, the Canadian Pacific Railway bridge has had two lift-spans installed to allow for the passage of ships. These spans can be raised or lowered in a minute and a half.

c) *Lake St. Louis and Beauharnois Locks:*

Entering Lake St. Louis, the ship proceeds some 12 miles by dredged channels before reaching the Lower Beauharnois Lock at the west end of the Lake.

The minimum width of St. Lawrence Seaway channels is 180 feet between bridge abutments and 225 feet when provided with two embankments, to 800 feet in improved channels. The controlling depth in canals and channels is 27 feet.

The Lower Beauharnois Lock by-passing the Beauharnois Power-House lifts the ship 38 to 42 feet so that it may pass through a short canal to the Upper Beauharnois Lock, where it is again lifted 36 to 40 feet to the level of Lake St. Francis; after some 13 miles in the Beauharnois Canal, the ship enters Lake St. Francis. It sails westward for some 30 miles by dredged channels to the head of the lake.

All locks and channels to this point have been built by Canada's St. Lawrence Seaway Authority.

d) *United States locks:*

The ship canal leaves Lake St. Francis at the southwest corner and before long crosses the international boundary just opposite St. Régis, Quebec. From here to the first lock on the United States side is only five miles. Entering the Bertrand H. Snell Lock, the ship is lifted 45 to 49 feet into the Wiley-Dondero Canal (ten miles long) and is then lifted another 38 to 42 feet by the Dwight D. Eisenhower Lock into Lake St. Lawrence, the power-pool on which HEPCO and PASNY draw for the water used in the turbines at the Barnhart Island-Cornwall Power-House Dam, a mile to the north. The ship canal through Lake St. Lawrence passes where rapids once tossed the water into an angry foam.

e) *Iroquois Lock:*

At the western end of Lake St. Lawrence, the Seaway Authority of Canada has built a lock to allow ships to by-pass the Iroquois Control Dam. The lift here is only about one foot. Once in the waters of the St. Lawrence west of Iroquois, the ship channel meanders through the Thousand Islands past Prescott and Brockville, on to Kingston or Cape Vincent on Lake Ontario, and thence by the open waters of the Lake to the port of Toronto, industrial Hamilton and Port Weller.

f) *Welland Canal:*

From Port Weller on Lake Ontario to Port Colborne on Lake Erie is 27 miles. Through a series of eight locks (three of them twin locks in flight allowing passage of ships in both directions simultaneously), ships are raised through 326 feet to the level of Lake Erie.

West on the Seaway route lie the Lake Erie ports, the chief ones, such as Ashtabula, Cleveland and Toledo, being in the United States. Next ships pass through the Detroit River, where Detroit and Windsor face each other across the international boundary. Then north through Lake St. Clair and the St. Clair River, the route serves Sarnia and the Lake Huron and Georgian Bay ports, important to Canada's wheat trade.

Access to Lake Michigan from Lake Huron is by means of the Strait of Mackinac, but the through-route takes shipping north and west through the St. Mary's River, with a lift of some 20 feet by means of one of the four United States locks or the Canadian lock at Sault Ste. Marie, to Lake Superior. Beyond lies the long run across the open lake to the United States lakehead at Duluth-Superior or the Canadian lakehead at Thunder Bay, at the very heart of the North American continent, 2,300 miles from the Atlantic Ocean.

Seaway economy

By most recent figures, new work on the Seaway proper from Montreal to Lake Erie will have cost Canada about $340 million; work in the international reaches of the river will have cost the United States some $130 million. (The two power entities will have spent $600 million in developing the power at Barnhart -- $300 million by HEPCO and $300 million by PASNY. These sums, which have been raised by floating bonds and by other types of borrowing, will be financed out of revenues realized from the sale of power.)

To recover the costs of construction, operation and maintenance of the navigation works, tolls are charged according to a schedule, which is published. (The toll receipts from the operation of the Montreal-Lake Ontario portion of the Seaway are divided between Canada and the United States on the basis of the respective annual charges of the two national Seaway entities -- 73 per cent to the St. Lawrence Seaway Authority (Canada) and 27 per cent to the Saint Lawrence Seaway Development Corporation (U.S.). All lockage fees from transit of the Welland Canal accrue to the St. Lawrence Seaway Authority.

Traffic

In the course of a navigation season extending between April 1 and December 15, the intensity of traffic grows as the upstream end of the waterway is approached. Some 53.7 million tons of cargo transited the Montreal-Lake Ontario section of the Seaway in 1972; on the Welland Canal section, nearly 64.2 million tons of cargo moved. The locks at the Sault have handled nearly 98.2 million tons of cargo during the 1972 navigation season. This waterway is primarily a bulk-cargo route; on the St. Lawrence Seaway itself about 90 per cent of the traffic is of this nature. From Sept-Iles and other St. Lawrence ports upstream between 12 and 13 million

tons of iron ore move to Hamilton, Ashtabula and other lake ports, where slightly more than 3 million tons move downstream through the Welland Canal to Hamilton and other lake ports. Approximately 21 million tons of grain from the Prairie Provinces and the American mid-Western states are carried from the head of the lakes and other lake ports to the Montreal, Trois Rivières and Quebec elevators and to markets abroad.

Furthermore, although United States ships move much of the Great Lakes cargo that does not come through the Seaway proper, about 50 per cent of the ships that sail the St. Lawrence Seaway are of Canadian registry.

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After further studies, and impelled by the power needs created by war production, Canada and the United States signed the Great Lakes-St. Lawrence Basin Agreement in 1941, with the same object in view. This agreement, which, like its predecessor, was submitted to the United States Senate for approval, remained unratified up to 1949.

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The ship canal leaves Lake St. Francis at the southwest corner and before long crosses the international boundary just opposite St. Régis, Quebec. From here to the first lock on the United States side is only five miles. Entering the Bertrand H. Snell Lock, the ship is lifted 45 to 49 feet into the Wiley-Dondero Canal (ten miles long) and is then lifted another 38 to 42 feet by the Dwight D. Eisenhower Lock into Lake St. Lawrence, the power-pool on which HEPCO and PASNY draw for the water used in the turbines at the Barnhart Island-Cornwall Power-House Dam, a mile to the north. The ship canal through Lake St. Lawrence passes where rapids once tossed the water into an angry foam.

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At about the same time, the Canadian Government made it known that Canada was prepared to proceed with an "all-Canadian" seaway as far west as Lake Erie once the means had been found to have the power works constructed concurrently in the International Rapids Section of the St. Lawrence River. By December 1951, the St. Lawrence Seaway Authority Act and the International Rapids Power Development Act had been approved by the Canadian Parliament, the first authorizing the construction of navigation works on the Canadian side of the river from Montreal to Lake Ontario as well as in the Welland Canal, the second authorizing the Hydro-Electric Power Commission of Ontario (HEPCO) to join a United States power-generating entity in constructing the necessary power works in the International Rapids Section of the St. Lawrence River.

In 1952, in order to get the power project under way, the Canadian and United States Governments submitted joint applications for the approval of the International Joint Commission to the proposed power development on the understanding that the Canadian Government would undertake to construct more or less concurrently and to operate all the works necessary to insure

uninterrupted 27-foot navigation between Montreal and Lake Erie. Approval of this proposal was given by the International Joint Commission in an Order of Approval dated October 29, 1952.

In 1953, the U.S. Federal Power Commission granted a 50-year licence to the Power Authority of the State of New York (PASNY) for the development of the United States half of this power project. Because the Order granting this licence to PASNY was contested in U.S. courts, it was not until June 1954 that PASNY had clear authority to join HEPCO in making a start on these works.

In the meantime, however, the United States Congress had enacted the Wiley-Dondero Bill (P.S. 83-358), which authorized and directed the Saint Lawrence Seaway Development Corporation to construct, on United States territory, all the 27-foot navigation facilities required to get shipping round the navigational barriers in the International Rapids Section. The situation thereby created required close consultation between the Canadian and the United States Governments in order to avoid a duplication of locks and canals. A number of compromises and accommodations were eventually worked out and embodied in a series of exchanges of notes, according to which the United States agreed to build a canal and two locks on United States territory to by-pass the Barnhart-Cornwall generating dam at the foot of the Long Sault Rapids and, in addition, to do some essential dredging elsewhere, while Canada agreed to build a lock and canal round the Iroquois Control Dam some 30 miles upstream and, in addition, to complete to a common standard all the necessary navigation facilities in Canadian territory, i.e. between Montreal and Cornwall and in the Welland Canal. The estimated cost to the United States of these works was about $100 million, while the estimated cost to Canada was to amount to about $200 million.

The first sod on the St. Lawrence Power Project was turned on August 10, 1954. Work on the Seaway began in September 1954. The Iroquois Lock was in regular use by May 1958 and the two United States locks from July 4. First power came from the international powerhouses on the latter date. Through-transit of the St. Lawrence Seaway began April 25, 1959, and the Seaway was opened officially by Queen Elizabeth II and President Dwight D. Eisenhower of the United States on June 26 of that year.

Navigation Facilities

Some idea of the magnitude of the work undertaken can be obtained by taking an imaginary voyage on a ship westbound from Montreal.

a) *St. Lambert Lock:*

Opposite the pool of Montreal Harbour can be seen the protecting dyke of the channel giving access to the Seaway, which begins just east of the Jacques Cartier Bridge, passes beneath the bridge and extends for three miles before reaching the first lock of the Seaway, the St. Lambert Lock, at the southern end of the Victoria Bridge. (At Victoria Bridge are lift-spans and a system of rail and road traffic diversion.)

The St. Lambert Lock lifts the ship some 15 feet from the level of Montreal Harbour to the level of Laprairie Basin, through which the ship channel sweeps in a great arc eight and a half miles long between its protecting embankments to the second lock.

b) *Cote Ste. Catherine Lock:*

The Cote Ste. Catherine Lock, like the other six new Seaway locks and the seven lift-locks on the Welland Canal, has been built to the following standard dimensions: length, 768 feet; length between stop signs in lock, 715 feet; width, 80 feet; depth over sills, 30 feet.

This lock, which requires 18.3 million gallons of water to fill, can be filled or emptied in approximately seven minutes. It lifts ships from the level of Laprairie Basin 30 feet to the level of Lake St. Louis. Its function is to by-pass the Lachine Rapids. Beyond it, the channel runs seven and a half miles before reaching Lake St. Louis.

Over this channel, at one point, tower the piers that give Honoré Mercier highway bridge 120 feet of clearance for ships. Further upstream, the Canadian Pacific Railway bridge has had two lift-spans installed to allow for the passage of ships. These spans can be raised or lowered in a minute and a half.

c) *Lake St. Louis and Beauharnois Locks:*

Entering Lake St. Louis, the ship proceeds some 12 miles by dredged channels before reaching the Lower Beauharnois Lock at the west end of the Lake.

The minimum width of St. Lawrence Seaway channels is 180 feet between bridge abutments and 225 feet when provided with two embankments, to 800 feet in improved channels. The depth in canals and channels is 27 feet.

The Lower Beauharnois Lock by-passing the Beauharnois Power House lifts the ship 38 to 42 feet so that it may pass through a short canal to the Upper Beauharnois Lock, where it is again lifted 36 to 40 feet to the level of Lake St. Francis; after some 13 miles in the Beauharnois Canal, the ship enters Lake St. Francis. It sails westward for some 30 miles by dredged channels to the head of the lake.

All locks and channels to this point have been built by Canada's St. Lawrence Seaway Authority.

d) *United States Locks:*

The ship canal leaves Lake St. Francis at the southwest corner and before long crosses the International Boundary just opposite St. Régis, Quebec. From here to the first lock on the United States side is only five miles. Entering the Bertrand H. Snell Lock, the ship is lifted 45 to 49 feet into the

Wiley-Dondero Canal (ten miles long) and is then lifted another 38 to 42 feet by the Dwight D. Eisenhower Lock into Lake St. Lawrence, the power-pool on which HEPCO and PASNY draw for the water used in the turbines at Barnhart Island-Cornwall Power House Dam, a mile to the north. The ship canal through Lake St. Lawrence passes where rapids once tossed the water into an angry foam.

e) *Iroquois Lock:*

At the western end of Lake St. Lawrence, the Seaway Authority of Canada has built a lock to allow ships to by-pass the Iroquois control dam. The lift here is only about one foot. Once in the waters of the St. Lawrence west of Iroquois, the ship channel meanders through the Thousand Islands past Prescott and Brockville, on to Kingston or Cape Vincent on Lake Ontario, thence by the open waters of the Lake to the great port of Toronto, to industrial Hamilton and to Port Weller.

f) *Welland Canal:*

From Port Weller on Lake Ontario to Port Colborne on Lake Erie is 27 miles. Through a series of eight locks (three of them twin locks in flight allowing passage of ships in both directions simultaneously), the ship is raised through 326 feet to the level of Lake Erie.

West on the Seaway route lie the Lake Erie ports, the chief ones being in the United States, such as Ashtabula, Cleveland and Toledo. Next, ships pass through the Detroit River, where Detroit and Windsor face each other across the International Boundary. Then, north through Lake St. Clair and the St. Clair River, the route serves Sarnia and the Lake Huron and Georgian Bay ports, important in Canada's wheat trade.

Access to Lake Michigan from Lake Huron is by means of the Strait of Mackinac, but the through-route takes shipping north and west through the St. Mary's River, with a lift of some 20 feet by means of one of the four United States locks or the Canadian one at Sault Ste. Marie, to Lake Superior. Beyond lies the long run across the open lake to the United States lakehead at Duluth-Superior or the Canadian lakehead of Thunder Bay, at the very heart of the North American continent, a full 2,300 miles from the Atlantic Ocean.

Seaway Economy

By most recent figures, new work on the Seaway proper from Montreal to Lake Erie will have cost Canada about $340 million; work in the international reaches of the river will have cost the United States some $130 million. (The two power entities will have spent $600 million in developing the power at Barnhart -- $300 million by HEPCO and $300 million by PASNY. These sums, which have been raised by floating bonds and by other types of borrowing, will be financed out of revenues realized from the sale of power.)

To recover the costs of construction, operation and maintenance of the navigation works, tolls are charged according to a schedule, which is published. (The toll receipts from the operation of the Montreal-Lake Ontario

portion of the Seaway are divided between Canada and the United States on the basis of the respective annual charges of the two national Seaway entities -- 73 per cent to the St. Lawrence Seaway Authority (Canada) and 27 per cent to the Saint Lawrence Seaway Development Corporation (U.S.). All lockage fees from transit of the Welland Canal accrue to the St. Lawrence Seaway Authority.

Traffic

In the course of a navigation season extending between April 1 and December 12, the intensity of traffic grows as the upstream end of the waterway is approached. On the Montreal-Lake Ontario section of the Seaway, some 51.1 million tons of cargo transited in 1970; on the Welland Canal section, over 62.9 million tons of cargo moved. The locks at the Sault have handled over 101.4 million tons of cargo during the 1970 navigation season. This waterway is primarily a bulk-cargo route and on the St. Lawrence Seaway itself over 90 per cent of the traffic is of this nature. From Seven Islands and other St. Lawrence ports upstream move between 15 million and 20 million tons of iron ore to Hamilton and Ashtabula. Approximately equivalent tonnages of grain from the Western prairies and the American mid-Western states are carried from the head of the lakes and other lake ports to the Montreal, Three Rivers and Quebec elevators and to markets abroad.

Furthermore, although United States ships move much of the Great Lakes cargo that does not come through the Seaway proper, about 70 per cent of the ships that sail the St. Lawrence Seaway are of Canadian registry.

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(Revised November 1963)

THE ST. LAWRENCE SEAWAY AND POWER PROJECT

A 400-year-old dream was realized when, in April 1959, ships began using the St. Lawrence Seaway. The Seaway in the broadest sense is a deep waterway extending some 2300 miles from the Atlantic Ocean to the head of the Great Lakes at the heart of North America; strictly speaking, however, within the meaning of the legislation which permitted construction to get under way, the St. Lawrence Seaway extends from Montreal Harbour to Lake Erie and includes the Welland Canal.

In the early part of the sixteenth century, the French explorer, Jacques Cartier, was turned back by the rushing waters of the Lachine Rapids just west of what is now Montreal and was thereby forced to abandon his dream of finding the Northwest Passage and the route to the rich and glamorous East. At various times during the intervening 300-odd years, canals have been dug and locks built around the natural barriers to navigation in the St. Lawrence River and in the waters connecting the Great Lakes. This activity was spurred on by the desire to make use of the economical water route which the waters of the Great Lakes Basin offered for the transportation of goods in and out of this important area of the continent. The first such canals were built in 1783, but were only two feet deep. By 1850, 9-foot canals had been completed in Canada right through to the Upper Lakes. By 1900, 14 feet was the regulation depth in these canals, though certain of them -- Sault Ste. Marie, for example -- were deeper. In 1932, Canada completed the Welland Canal, 27 miles in length with a depth of 25 feet in some reaches. This canal and its eight locks overcome the differences in level of 326 feet between Lake Ontario and Lake Erie. Its construction may be considered as the first step, and a decisive one, in the construction of the present Seaway.

The needs of commerce pointed to the desirability of providing even greater depths in the St. Lawrence canals, locks and connecting channels and, by 1959, as a result of the joint efforts of the Canadian St. Lawrence Seaway Authority and the United States Saint Lawrence Seaway Development Corporation, 27-foot depths were available from Montreal to Lake Erie. The improvements to the Welland Canal between Lake Ontario and Lake Erie round the barrier of Niagara Falls have been the sole responsibility of the St. Lawrence Seaway Authority. Deepening the channels above Lake Erie to Seaway standards was done by others, and now 27-foot depths are available into the Upper Lakes.

While the Seaway development was in progress, the Hydro-Electric Power Commission of Ontario (HEPCO) and the Power Authority of the State of New York (PASNY) completed works in the International Rapids Section of the St. Lawrence to convert into electricity the energy that once expended itself by tumbling through the rapids west of Cornwall. The Barnhart Island-Cornwall generating plants produce 840,000 kw in each country.

History of Negotiations

Negotiations between Canada and the United States aimed at developing these twin resources of the St. Lawrence River and the Great Lakes for the benefit of both countries began toward the end of the last century, though, as has been shown, piecemeal development of navigation by Canada in the Great Lakes Basin started centuries ago. Power was first developed at Niagara at the turn of the century. In 1912, the Canadian Government decided to improve the Welland Canal to provide 27-foot depths with locks 800 feet long and 80 feet wide. Work began in 1913, was suspended during the First World War, and was finally completed at a cost of approximately $132 million in 1932. In the same year, Canada and the United States signed the St. Lawrence Deep Waterway Treaty, which was to provide for the joint development of the resources in the Great Lakes basin in the interests of both navigation and power. In 1934, this treaty was rejected by the United States Senate.

After further studies, and urged on by the power needs created by war production, Canada and the United States signed the Great Lakes - St. Lawrence Basin Agreement in 1941, with the same object in view. This agreement, which, like its predecessor, was submitted to the United States Senate for approval, remained unratified by 1949.

The 1941 agreement was intended, among other things, to permit the development, as a joint project, of the power resources available at Niagara Falls, where over the falls alone, 160 feet of drop is available for the production of power. Since there was little prospect by 1949 that the agreement would be approved, a separate treaty was signed and ratified in 1950 setting forth the principles under which the water in the Niagara River could be turned into power by Canada and the United States.

At about the same time, the Canadian Government let it be known that Canada was prepared to proceed with an "all-Canadian" seaway as far west as Lake Erie, once the means had been found to have the power works constructed concurrently in the International Rapids Section of the St. Lawrence River. By December 1951, the St. Lawrence Seaway Authority Act and the International Rapids Power Development Act had been approved by the Canadian Parliament, the first authorizing the construction of navigation works on the Canadian side of the river from Montreal to Lake Ontario as well as in the Welland Canal, the second authorizing the Hydro-Electric Power Commission of Ontario (HEPCO) to join a United States power-generating entity in constructing the necessary power works in the International Rapids Section of the St. Lawrence River.

In 1952, in order to get the power project under way, the Canadian and United States Governments submitted joint applications for the approval of the International Joint Commission to the proposed power development, on the understanding that the Canadian Government would undertake to construct more or less concurrently and to operate all the works necessary to insure uninterrupted 27-foot navigation between Montreal and Lake Erie. Approval of this proposal was given by the International Joint Commission in an Order of Approval dated October 29, 1952.

In 1953, the U.S. Federal Power Commission granted a 50-year license to the Power Authority of the State of New York (PASNY) for the development of the development of the United States half of this power project. Because the order granting this license to PASNY was contested in U.S. courts, it was not until June of 1954 that PASNY had clear authority to join HEPCO in making a start on these works.

In the meantime, however, the United States Congress had enacted the Wiley-Dondero Bill (P.S. 83-358), which authorized and directed the Saint Lawrence Seaway Development Corporation to construct, on United States territory, all the 27-foot navigation facilities required to get shipping round the navigational barriers in the International Rapids Section. The situation thereby created required close consultation between the Canadian and the United States Governments in order to avoid a duplication of locks and canals. A number of compromises and

accommodations were eventually worked out and embodied in a series of exchanges of notes, according to which the United States agreed to build a canal and two locks on United States territory to by-pass the Barnhart-Cornwall generating dam at the foot of the Long Sault Rapids and, in addition, to do some essential dredging elsewhere, while Canada agreed to build a lock and canal round the Iroquois Control Dam some 30 miles upstream and, in addition, to complete to a common standard all the necessary navigation facilities in Canadian territory, i.e. between Montreal and Cornwall and in the Welland Canal. The estimated cost to the United States of these works was of the order of $100 million, while the estimated cost to Canada was to amount to about $200 million.

The first sod on the St. Lawrence Power Project was turned on August 10, 1954. Work on the Seaway began in September of 1954. The Iroquois Lock was in regular use by May 1958 and the two United States locks also from July 4. First power came from the international powerhouses on the latter date. Through transit of the St. Lawrence Seaway began April 25, 1959, and the Seaway was opened officially by Queen Elizabeth II and President Dwight D. Eisenhower of the United States on June 26, of that year.

Navigation Facilities

Some idea of the magnitude of the work undertaken can be obtained by taking an imaginary voyage on a ship west-bound from Montreal.

a) St. Lambert Lock:

Opposite the pool of Montreal Harbour can be seen the protecting dyke of the channel giving access to the Seaway, which begins just east of the Jacques Cartier Bridge, passes beneath the bridge and extends for three miles before reaching the first lock of the Seaway, the St. Lambert Lock, at the southern end of the Victoria Bridge. (At Victoria Bridge are lift spans and a system of rail and road traffic diversion.)

The St. Lambert Lock lifts the ship some 15 feet from the level of Montreal Harbour to the level of Laprairie Basin, through which the ship channel sweeps in a great arc 8½ miles long between its protecting embankments to the second lock.

b) Cote Ste. Catherine Lock:

The Cote Ste. Catherine Lock, like the other six new Seaway locks and the seven lift locks on the Welland Canal, has been built to the following standard dimensions: Length, 766 feet; length between stop signs in lock, 715 feet; width, 80 feet; depth over sills, 30 feet.

This lock, which requires 24 million gallons of water to fill, can be filled or emptied in less than ten minutes. It lifts ships from the level of Laprairie Basin through 30 feet to the level of Lake St. Louis. Its function is to by-pass the Lachine Rapids. Beyond it, the channel runs 7½ miles before reaching Lake St. Louis.

Over this channel at one point tower the piers that give Honoré Mercier highway bridge 120 feet of clearance for ships. Further upstream the Canadian Pacific Railway bridge has had two lift spans installed to allow for the passage of ships. These lift spans can be raised or lowered in a minute and a half.

c) Lake St. Louis and Beauharnois Locks

Entering Lake St. Louis, the ship proceeds some 12 miles by dredged channels before reaching the Lower Beauharnois Lock at the west end of the Lake.

The minimum width of St. Lawrence Seaway channels is 200 feet when provided with two embankments, 300 feet when there is only one embankment, and 450 feet in the open reaches. The depth in canals and channels is 27 feet.

The Lower Beauharnois Lock by-passing the Beauharnois Power House lifts the ship 41 feet so that it may pass through a short canal to the Upper Beauharnois Lock, where it is again lifted 41 feet to the level of Lake St. Francis; after some 13 miles in the Beauharnois Canal, the ship enters Lake St. Francis. It sails westward for some 30 miles by dredged channels to the head of the lake.

All locks and channels to this point have been built by Canada's St. Lawrence Seaway Authority.

d) United States Locks:

The ship canal leaves Lake St. Francis at the southwest corner and before long crosses the International Boundary just opposite St. Régis, Quebec. From here to the first lock on the United States side is only five miles. Entering the Bertrand H. Snell Lock, the ship is lifted 45 feet into the Wiley-Dondero Canal (10 miles long) and is then lifted another 38 feet by the Dwight D. Eisenhower Lock into Lake St. Lawrence, the power pool on which HEPCO and PASNY draw for the water used in the turbines at Barnhart Island-Cornwall Power House Dam, a mile to the north. The ship canal through Lake St. Lawrence passes where rapids once tossed the water into an angry foam.

e) Iroquois Lock:

At the western end of Lake St. Lawrence, the Seaway Authority of Canada has built a lock to allow ships to by-pass the Iroquois Control Dam. The lift here is only about one foot. Once in the waters of the St. Lawrence west of Iroquois, the ship channel meanders through the Thousand Islands past Prescott and Brockville, on to Kingston or Cape Vincent on Lake Ontario, thence by the open waters of the Lake to the great port of Toronto, to industrial Hamilton and to Port Weller.

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From Port Weller on Lake Ontario to Port Colborne on Lake Erie is 27 miles. Through a series of eight locks (three of them twin locks in flight allowing passage of ships in both directions simultaneously), the ship is raised through 326 feet to the level of Lake Erie.

West on the Seaway route lie the Lake Erie ports, the chief ones being in the United States, such as Ashtabula, Cleveland and Toledo. Next, ships pass through the Detroit River, where Detroit and Windsor face each other across the International Boundary. Then, north through Lake St. Clair and the St. Clair River, the route serves Sarnia and the Lake Huron and Georgian Bay ports, important in Canada's wheat trade.

Access to Lake Michigan from Lake Huron is by means of the Strait of Mackinac, but the through route takes shipping north and west through the St. Mary's River, with a lift of some 20 feet by means of one of the four United States locks or the Canadian one at Sault Ste. Marie, to Lake Superior. Beyond lies the long run across the open lake to the United States lakehead at Duluth-Superior or the Canadian lakehead of Port Arthur-Fort William, at the very heart of the North American Continent, a full 2,000 miles from the Atlantic Ocean.

Seaway Economy

By most recent figures, new work on the Seaway proper from Montreal to Lake Erie will have cost Canada about $340 million; work in the international reaches of the river will have cost the United States some $130 million. (The two power entities will have spent $600 million in developing the power at Barnhart - $300 million by HEPCO and $300 million by PASNY. These sums, which have been raised by floating bonds and by other types of borrowing, will be financed out of revenues realized from the sale of power.)

To recover the costs of construction, operation and maintenance of the navigation works, tolls are charged according to a schedule, which is published. (The toll receipts from the operation of the Montreal-Lake Ontario portion of the Seaway are divided between Canada and the United States on the basis of the respective annual charges of the two national Seaway entities -- 71 per cent to The St. Lawrence Seaway Authority (Canada) and 29 per cent to the Saint Lawrence Seaway Development Corporation (U.S.). All tolls from transit of the Welland Canal accrue to The St. Lawrence Seaway Authority. Not later than July 1, 1964, the two entities must report to their respective governments as to the sufficiency of the authorized tolls to meet the statutory requirements.)

Traffic

In the course of a navigation season extending between April 15 and November 30, the intensity of traffic grows as the upstream end of the waterway is approached. On the Montreal-Lake Ontario section of the Seaway, some 25,600,000 tons of cargo transited in 1962; on the Welland Canal section, over 35,000,000 tons of cargo moved. The locks at the Sault have handled over 80,000,000 tons a year during recent navigation seasons. This waterway is primarily a bulk-cargo route and on the St. Lawrence Seaway itself over 90 per cent of the traffic is of this nature. From Seven Islands and other St. Lawrence ports upstream move 5,000,000 to 6,000,000 tons of iron ore to Hamilton and Ashtabula. Approximately 9,000,000 tons of grain from the Western prairies and the American mid-Western states are carried from the head of the lakes and other lake ports to the Montreal, Three Rivers and Quebec elevators and to markets abroad.

Furthermore, although United States ships move much of the Great Lakes cargo that does not come through the Seaway proper, two ships of every three that sail the St. Lawrence Seaway are of Canadian registry.

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Reference Papers

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EDUCATION IN CANADA

(Prepared in the Education, Science and Culture Division, Statistics Canada)

PART I

General Information

Provincial autonomy

In 1867, the British North American colonies that entered into Confederation insisted, as a condition of union, that education be strictly a provincial matter. Section 93 of the British North America Act, which provided that educational legislation should be the exclusive responsibility of provincial governments, applied originally to New Brunswick, Nova Scotia, Quebec and Ontario. It was applied in the same form, or a slightly altered one, to the provinces that subsequently entered Confederation: Manitoba (1870); British Columbia (1871); Prince Edward Island (1873); Saskatchewan and Alberta (1905); and Newfoundland (1949).

In Canada today, the provinces are responsible for the education of all persons *except:* inmates of federal penitentiaries; children of members of the Armed Forces on National Defence stations; and some Indian children attending schools administered by the Education Branch of the Department of Indian and Northern Affairs. The Federal Government, which is responsible for these groups, also provides grants to each province to be divided among its universities, community colleges and other tertiary (post-secondary) institutions, and participates to a considerable extent in informal education. It assists educational institutions indirectly by making grants-in-aid for research personnel and equipment, and by collecting, disseminating and analyzing education statistics.

The development of the Canadian educational enterprise under the auspices of the provincial governments has produced a school system second to none. There is equality of educational opportunity, and the illiteracy rate is so small as to be virtually non-existent. For all who have been to school, whether they have completed their courses or not, there are post-secondary and continuing education opportunities. In 1970-71, the total full-time enrolment in formal tertiary institutions was about 476,000. In the past five years, adult continuing education programs (credit and non-credit) for

part-time students have expanded rapidly and enrolments increased even more quickly. In 1970-71, there were about 795,000 school-board registrants in these courses in Canada. In addition, part-time enrolment at universities is increasing at a faster rate than full-time enrolment. The effect of this continuing education is one of constant improvement and development of the individual to the limit of his capacity. Newcomers to the country join readily in this educational activity and take advantage of the opportunities presented.

Provincial education departments

Educational organization, policies and practices differ from province to province. Each province has a department of education headed by a minister who is a member of the cabinet. Each department is administered by a deputy minister, who is a professional educationist and a public servant. He advises the minister, supervises the department, gives a measure of continuity to its policy and in general carries out that policy. He is also responsible for enforcing the public school act.

Departments of education may include the following additional members: a chief inspector of schools and his staff of local inspectors; directors or supervisors of instructional services, technical education, post-secondary services, and teacher training; a registrar of examinations and teacher certification; and other officials in charge of guidance, audio-visual education, correspondence education, curriculum development, and research.

The departments of education undertake, among other things, to provide:

(a) supervisory services to ensure maintenance of standards;

(b) training and certification of teachers;

(c) courses of study and prescribed or approved textbooks;

(d) financial assistance to local school-boards for the construction and operation of schools;

(e) regulations for the guidance of trustees and teachers.

The Department of Education in Newfoundland is an example of an existing provincial organization.(1)

In addition to the departments of education, some provinces have recently created independent departments specifically to serve the rapidly-expanding domain of tertiary education, consisting

(1) See Appendix I.

primarily of universities and community colleges. Thus one finds a Department of Colleges and Universities in Ontario; a Department of Colleges and Universities Affairs in Manitoba; and a Department of Advanced Education in Alberta. In Saskatchewan, a second department has been announced but not yet named. Quebec has created two directorates, one of which is responsible for universities and the other for colleges. British Columbia has created a new position under the Superintendent of Post-Secondary Services, called the Co-ordinator of Post-Secondary Services.

Council of Ministers of Education, Canada

The Council of Ministers of Education was established in 1967 with the concurrence of the ministers' respective governments. The Council is an interprovincial educational agency set up for co-ordination, information and liaison purposes, operating at the interprovincial and provincial-federal levels. Also, it is intimately involved, through the Department of External Affairs, in Canada's international role in education. Its basic aim is to enable the ministers to consult on such matters as are of common interest, and to provide a means for the fullest co-operation among provincial governments in areas of mutual interest and concern in education.

Interprovincial co-ordination is achieved mainly through the Council's committees and subcommittees, which consist of senior departmental officials working in the following areas: manpower programs, instructional media, post-secondary education, curricula, and education statistics.

Although education is a provincial concern within Canada according to the Constitution, the Federal Government has become involved in this field as well; this necessitates co-operation between the Council and various federal departments and agencies.

Contacts have been established by the Council with the Department of the Secretary of State and a number of federal agencies reporting to the Secretary of State, such as the Canadian Broadcasting Corporation, the National Film Board and the Canadian Radio and Television Commission. Other federal contacts include the Departments of External Affairs, Manpower and Immigration, Indian and Northern Affairs, and National Health and Welfare, as well as Statistics Canada, the Canadian International Development Agency, the Canadian Commission for UNESCO(2) and the Preparatory Commission for Metric Conversion.

The Department of External Affairs maintains close liaison with the Council on all matters pertaining to Canada's international commitments in the field of education. With the increasing importance of

(2) The United Nations Educational, Scientific and Cultural Organization.

education on a world-wide basis, Canada is called on to play a major role as a member of various international educational organizations. In this connection, the Department of External Affairs co-operates with the Council with regard to the selection of official delegates to represent the country at international education conferences, the selection of topics for discussion at such conferences and the preparation of working papers and reports for Canada. The Department of External Affairs also normally channels official communications from such international organizations as UNESCO, the International Bureau of Education, the International Institute for Educational Planning, the Organization for Economic Co-operation and Development, the Centre for Educational Research and Innovation, and the Commonwealth Education Liaison Committee, through the Council to the provincial departments of education.

The Council co-operates with various professional educational organizations in promoting the development of education in Canada.

Local units of administration

As towns and cities developed, the original boards remained as units but provision was made in the acts for urban school-boards with more members and generally with a responsibility for both elementary and secondary schools, though in some districts separate boards are still to be found. In recent years, there has been a trend in rural and adjoining town areas to amalgamate boards into larger units of administration. In most provinces, school-board consolidation has been effected, resulting in a great reduction in the number of boards. Some examples are: New Brunswick 33 (formerly 400); Newfoundland 35 (formerly 300); and Ontario 185 (formerly 4,000). Similar kinds of consolidation have taken place across the nation generally. This reorganization has led to great improvements at the school-district and classroom levels.

Teaching staff

Candidates in all provinces for elementary teacher certificates must have a minimum of high-school graduation and at least one year of professional training in a faculty of education or a teachers' college. The training usually consists of professional and academic courses and some time spent in practice teaching. Secondary-school teachers are generally university graduates who have taken an additional year in a college of education or who have graduated with a year in education. The trend is for the provincial departments of education to give the universities the responsibility for training elementary as well as secondary-school teachers. Teachers' colleges now exist apart from universities in only four provinces. Universities participate in the training of elementary-school teachers in Nova Scotia, New Brunswick, Ontario and Quebec, but in

these four provinces there still exist government-administered teachers' colleges. In eight provinces for which data are available, about 11 per cent of those in elementary schools and 74 per cent of those in secondary schools have university degrees.

School organization

The majority of elementary-school and secondary-school pupils in Canada are in public schools. About two per cent attend private schools. Each September, most six-year-old Canadian children enter an eight-grade elementary school. At about 14 years of age, nearly 90 per cent of these enter a regular four-year or five-year secondary school. From the graduates at this level, a limited number, about 13 per cent of those who began school, go on to college or university, where more than half of them pursue a three-year or four-year program leading to a bachelor's degree in arts or science. The remainder enrol in various professional courses, such as commerce, education, engineering, law and medicine. In addition, an increasing number (10 per cent) attend community colleges. In three provinces (British Columbia, Alberta and Quebec), comprehensive programs exist that offer university-parallel programs as well as the technological programs offered in other provinces.

The eight-four plan leading from Grade 1 to tertiary has been modified from time to time in all provinces and there are a number of variants to be found in Canada. For example, in some parts, at the beginning of the system, one kindergarten year has been added, and sometimes there are two. In other places an extra year has been added to the high school, providing five rather than four years of secondary schooling. Junior high schools have been introduced and the resulting organization changed to a six-three-three or six-three-four plan. A fairly recent innovation is the establishment of what is generically called community colleges, discussed below. In the Province of Quebec, such schools are referred to as CEGEPs.

Historically, the secondary school was predominantly academic, preparing its students for entry to university. Until recently, vocational schools were limited almost entirely to the larger cities. Today, besides commercial and technical secondary schools, there are increasing numbers of composite and regional secondary schools that provide courses in home economics, agriculture, shop-work and commercial subjects, as well as the regular academic courses. The number of subjects offered has also greatly increased and the number of options available provides a wide choice for pupils with different abilities and aims. Considerable emphasis has been placed on music, art, physical education, guidance and group activities, but not at the expense of the basic subjects that provide a general foundation.

Interest is increasing in the education of exceptional children. Rapid progress in special education for gifted children takes the form of innovative, "enriched" and accelerated programs. In many cities there are classes for the hard-of-hearing, the partially blind, and others physically and mentally handicapped.

Vocational education and occupational training

Vocational education and occupational training at the secondary level have grown considerably in the past ten years. Most regular secondary schools provide a limited number of choices in such subjects as agriculture, home economics, shorthand and typing. Vocational, technical and commercial high schools are an integral part of the secondary-school systems of some provinces. Composite schools, whether urban or regional, usually provide several optional programs (in academic or technical subjects, agriculture, home economics and commerce), and may allow individual students to choose courses from different programs.

Provincial trade-schools are operated by the provinces to complement the work undertaken in vocational high schools. These are essentially trade-schools offering six-week to two-year courses, mostly at the secondary level. Some schools of this kind offer a wide range of courses, from engineering technology to stenography, and from business-machine operation to cooking.

Private trade-schools provide a large variety of courses, in such subjects as beauty culture and diesel engineering; they prepare students for occupations as different as postal clerk, musician or welder. There are over 225 private business colleges that train typists, stenographers, bookkeepers, office-machine operators, secretaries and others. Most offer part-time and evening courses as well as full-time day courses, and a few offer correspondence courses.

Community colleges and related institutions

Although universities have been and still are the predominant and traditional institutions offering tertiary education to secondary-school graduates, alternatives exist in the form of community colleges and related institutions. Community colleges have certain characteristics more or less in common -- none grant degrees, all are oriented to community needs. Such colleges offer one, two or three years of study beyond secondary school. The chief function of the colleges is not research but teaching. Many are public institutions stressing an open-door policy and are provincially controlled; others are private. Instruction available to both full-time and part-time students is offered during the day and in the evening.

There are over 100 community colleges, and these exist in an array of forms throughout Canada and within the provinces. Some are comprehensive, offering both university-parallel programs and technological training. Others offer programs in one category or the other.

About 65 provincial institutes of technology offer programs lasting from one to four years. Nursing education, which was once offered only in hospitals, is now given mainly at university but is also available at community and regional colleges. Courses at the master's level are offered at several universities.

There is an Association of Canadian Community Colleges, an agency useful to all levels of college organization across the country. Its board consists of directors, students, local-college board members, faculty, administrators and others interested in a national perspective.

University education

Most students entering a university do so after completing 11 to 13 years of elementary and secondary schooling. In from three to five years, courses of instruction lead to bachelors' degrees in arts, pure science and such professional fields as engineering, business administration, agriculture and education. Courses in law, theology, dentistry, medicine and some other subjects are longer, usually requiring for admission part or all of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is the master's or *licence*, at least one year beyond the first degree. The third is the doctorate, normally requiring at least two more years after the second degree.

Adult continuing education

Many opportunities are provided for further academic, vocational and cultural experience beyond the regular full-time classes in secondary schools; numerous adults return to regular full-time classes in secondary schools, special schools and post-secondary schools to upgrade and advance their education. Each province has developed its own programs, operated by local school-boards, provincial community colleges and institutes, universities, and voluntary and private organizations at the national, provincial and local levels.

Approximately 176,000 adults are taking part-time credit courses of study in school-board programs that lead to secondary-school graduation. An additional 274,000 adults attend other credit and non-credit general courses. Universities have become increasingly involved with provision of credit and non-credit courses to adults on a part-time basis. Interest in part-time education is so great that part-time enrolments are increasing at a faster rate than full-time.

Many public and private institutions and organizations also sponsor informal public lectures, film-showings, guided tours, musical and dramatic performances and similar activities of an educational nature for adults. Workshops, conferences and residential adult education, as well as regular courses, help prepare those who staff these activities.

Financing education

The cost of education in Canada for the year ended March 31, 1971, has been estimated at $6.5 billion, an amount that represents slightly more than 8 per cent of the gross national product. By comparison, in 1960 the cost of education represented 4.3 per cent of the GNP.

The Federal Government makes grants for provincial trade and technical schooling, tertiary education, and a variety of manpower programs. The provincial governments have provided the local school districts with either flat or incentive grants and special grants. Recently, several have adopted some sort of foundation program under which a minimum level of services is guaranteed after local authorities have applied the proceeds from a tax on an equalized assessment, the province making up the balance. A school district may levy to provide additional services.

In keeping with the provincial responsibility for elementary, secondary and tertiary education, as specified in the British North America Act, the cost of basic education for children of school age is borne by provincial, municipal and local administrations. The Federal Government contributes to some vocational training in the secondary schools and much of the post-secondary vocational training, and shares substantially in tertiary education costs.

The Federal Government pays the entire costs of educating Indians and Eskimos(3), members of the Armed Forces and their children, and some dependent children of the war dead and veterans.

Since 1964, a special program of federal loans to university students has provided up to $1,000 a year to individual students, free of interest until after graduation.

Some 60 federal departments and agencies contribute to education in Canada, although the Federal Government has no responsibility for the organization and administration of education. It has, however, a vital interest in the level of education and skills of the population and the extent of scientific research carried on in Canada, realizing the effect of these on the national economy, the quality of life in Canada, and the individual.

(3) See Pages 11 and 14-15.

PART II

Regional Characteristics of School Systems

The provinces, though independent in educational administration, may be grouped regionally for a better appreciation of their education systems.

Atlantic Provinces

(a) Newfoundland and Labrador (Nfld)
(b) Prince Edward Island (P.E.I.)
(c) Nova Scotia (N.S.)
(d) New Brunswick (N.B.)

The creation of the Maritime Union Study has recently quickened the interest in closer co-operation among the Atlantic Provinces. Much useful communication has resulted.

Compulsory school age is from six or seven to 15 or 16, depending on the province, but earlier enrolment is possible in kindergartens. Even younger children are admitted to pre-school programs in Nova Scotia and New Brunswick.

Length of school year is 195 days in three of the provinces. In P.E.I., the school year extends 200 days from the Tuesday following Labour Day until the last Friday in June. The interim period is the annual summer vacation. A ten-day break is given at Christmas and a one-week break at Easter.

Grade organization is the same in Nova Scotia, New Brunswick and Prince Edward Island: elementary school to the end of Grade 6; junior high school from Grade 7 to Grade 9; and senior high from Grade 10 to Grade 12. In Newfoundland, elementary may be up to Grade 6 or up to Grade 8, depending on the school, central high from Grade 7 to Grade 11, regional high from Grade 9 to Grade 11; and there are also some junior-senior high schools from Grade 7 to Grade 9 and from Grade 10 to Grade 11.

Kindergartens are a part of the public elementary-school system in most large urban centres in Nova Scotia and Newfoundland; some are included in private schools and many are privately operated. Most kindergartens accept only five-year-olds, but a growing number are accepting four-year-olds. There are some nursery schools for children from three to five years of age, also mainly privately operated.

The area of *subject promotion* is being looked at on an experimental basis in P.E.I., and will be used as a springboard towards individualized instruction. In Nova Scotia, a pupil who fails to make satisfactory progress in one course but performs satisfactorily in others is permitted to take the work of the next grade in those courses he has passed. All four provinces are working toward a common organization that will eliminate grade promotion in favour of subject promotion using a "credit" system. A pupil will carry five or six subjects a year and build up 15 credits, for example, in order to be eligible for graduation.

The language of instruction in the schools of the Atlantic Provinces is English, but in New Brunswick French, as a second language, is compulsory beginning in Grade 5 and optional beginning in Grade 3. French-speaking pupils form 38 per cent of the student body in New Brunswick, and it is predicted that by 1971 pupils in French-speaking schools will be able to study every subject in French from Grade 1 to Grade 12.

Tertiary education includes both university and post-secondary non-university programs. Non-university programs are given at institutes of technology, colleges of fisheries and agriculture, and a community college. A New Brunswick Higher Education Commission was appointed to co-ordinate all tertiary education. The matter of university entrance is under intense review in all the Atlantic Provinces. Factors considered at present include: (a) secondary-school marks; (b) school assessment of pupil; and (c) the APEB (Atlantic Provinces Examination Board) examination results. Newfoundland withdrew from the APEB structure in June 1970 and offers its own provincial examination at the end of Grade 11.

Central provinces

(a) Quebec
(b) Ontario

These two giants possess about 64 per cent of the population of Canada. Both have undergone rapid changes in their education systems during the 1960s.

The school system in Quebec operates by virtue of a unique compromise arrived at after more than a century of struggle between the two main ethnic groups, French and English. Some seven-eighths of the population is Catholic, and of the rest Protestants are most numerous.

The organization of the non-Catholic schools resembles that in other provinces and, while in the past the Catholic system was modeled to a large extent on the educational system in France, during the last decade the entire system has been reorganized along lines resembling the rest of the Canadian school-systems. Pupils are taught in French in the majority of Catholic schools and in English in the non-Catholic schools, with two or three exceptions. Private organizations finance and administer private schools: elementary and secondary, classical colleges, commercial schools and establishments giving courses at the university level. Public schools depend on local taxes, to which are added provincial subsidies. These are free and accessible to all children of school age.

A most significant change in Quebec school administration occurred in 1964 with the setting-up of a unified public authority at the provincial level: a new Department of Education, with the Minister and Deputy Minister coming from the former Department of Youth. There are two Associate Deputy Ministers, one for the Catholic sector and one for the non-Catholic sector.

An emerging trend in Quebec is the increasing presence of a composite course with graduated options and promotion by subject-matter.

A structure for universal post-secondary education in Quebec was completed in 1969. Colleges of general and vocational education (abbreviated CEGEP) began to offer students an extra two or three years of technical training and academic education before they went to work, or as a prerequisite for entering university. There are more than 40 CEGEPs today, all except four French-language. These have swiftly transformed the structure of tertiary education. In addition, a new University of Quebec and a new Council of Universities are other important developments. Several universities and colleges are located in Quebec, offering a wide variety of *degree, diploma* and *certificate* programs.

The education system in Arctic Quebec, which is administered by the Department of Indian and Northern Affairs, comprises ten schools with about 800 students at the elementary level.

Ontario has a 13-grade system, with provision also for kindergartens and pre-school enrolment. One of the latest developments is the employment of a credit system to cover the former Grades 9 to 12 leading to the secondary-school graduation diploma. This provides a means to more flexible schedule patterns with a view to greater freedom of pupil choice within an expanding range of subject

offerings, even to the creation of individual timetables for pupils. A credit is defined as a course successfully completed, normally after 110 to 120 hours of scheduled time. The diploma (Grade 12 standing) is awarded after the successful completion of a minimum of 27 credits. Grade 13 counts as senior matriculation for admission to university, including teachers' colleges. For the vast majority of schools in Ontario, English is the language of instruction. However, school-boards may and do establish elementary schools (or classes, including kindergarten) that provide French-language instruction for French-speaking pupils.

Tertiary education includes many universities of varying complexity and post-secondary non-university education in the form of 20 provincial colleges of applied arts and technology (CAATs) and their branches. Tertiary education comes under the responsibility of the Department of Colleges and Universities.

Prairie Provinces

(a) Manitoba
(b) Saskatchewan
(c) Alberta

The history of the development of education in the Prairie Provinces shows why their administrative structures are similar. Before Saskatchewan and Alberta became provinces, their schools were administered from Manitoba and their teachers were trained there. In recent years, different political outlooks in these provinces have had an effect on educational administration, though educators in all three continue to press for common approaches and common textbooks in the core school subjects.

In Manitoba, under the Department of Education, local trustee boards are authorized to administer pre-school, primary and secondary programs. A new Department of Colleges and Universities Affairs has recently been appointed to administer all tertiary education (universities and community colleges).

In the Manitoba public schools (kindergarten through Grade 12), promotion is the responsibility of the local school authorities. There has been a movement away from final examinations and toward continuous evaluation. To gain entrance to a university, a student must present evidence that he has standing in at least three examinations of the High-School Examination Board and school standing in at least two others.

Saskatchewan has recently introduced its plan for a reorganized school system. The traditional 12 elementary-secondary grades have been replaced by four "divisions", each consisting of three years of school for a pupil making normal progress. In Divisions I and II, the principle of non-grading, involving the ideas of continuous progress and flexible promotion, has been adopted. Division III programs have been planned to meet the special needs of the 13-15 age-group, with the problems of emerging adolescence. For Division IV, major changes are contemplated in the total scope of courses offered and in the content and methods used within particular subject areas.

Saskatchewan, which at one time housed a large number of junior colleges, facilitated the affiliation of most of these with the one university in the province. Three collegial structures exist today, one offering a university-parallel program.

In addition to the Department of Education, a second department, designed to deal with all tertiary education, has been announced.

Education in Alberta is under constant review by the province's Commission on Educational Planning, charged with the broad task of predicting what Alberta society will be like educationally, socially and economically during the last third of the twentieth century. Innovations in recent years include: extensive experimentation in programs carried out at the local-school level; modern buildings, incorporating the latest design in instructional facilities; a growing trend towards the semester system and other methods of dividing the school year; implementation of school television projects; and establishment of a system of community colleges to complement the universities and other post-secondary institutions. These community colleges offer both university-parallel and technological programs. A Department of Advanced Education has been created to administer all tertiary education.

British Columbia and the territories

(a) British Columbia
(b) Yukon Territory
(c) Northwest Territories

Details of education programs in British Columbia are similar to those of the most advanced programs in the other provinces. These programs are administered under the following services: audio-visual, curriculum development, curriculum resources, research and standards, post-secondary, correspondence, guidance and teacher

recruitment, and vocation. The Department of Education was reorganized in 1971, leading to major changes in departmental structure, including: elimination of the position of Superintendent of Education; transfer of the duties of the Superintendent to the Deputy Minister; and realignment of the duties of the various Assistant Superintendents in positions to be known as Superintendents of Educational Services. Under one of these, the Superintendent of Post-Secondary Services, a new position has been created called Co-ordinator of Post-Secondary Services.

In 1970 amendments to the Public Schools Act categorized all community colleges as comprehensive regional colleges with university-parallel courses, and strengthened, at the same time, province-wide co-ordination of post-secondary school and adult education. There are ten regional colleges, one city college, two private colleges and one institute of technology.

A major development for the 1970s, based on the report of the Commission on the Future of the Faculty of Education, is the revision of the academic program and administrative structure of the University of British Columbia's Faculty of Education. Among the 85 recommendations are such innovations as: adoption of a single five-year bachelor of education program; introduction of the "teaching associate" idea; a new master of pedagogy degree; and student participation in decision-making at the operational level.

The Yukon Department of Education uses the British Columbia curriculum and pattern of school organization. The territory is not classified as a province, and its education policy is controlled by a series of school ordinances issued by the Commissioner of the Yukon Territory. Such ordinances account for teachers' certificates, classification of schools, election of school trustees, general policy (school year, school hours, holidays, language of instruction -- mainly English, religious instruction, kindergartens, etc.), Department of Education examiners, adult occupational training, apprentice training, vocational rehabilitation of disabled persons, fitness and amateur sport regulations, students' grants, and others. Under the Commissioner, education policy is administered by a Department of Education comprising a Superintendent of Schools, two Assistant Superintendents, and three other professional officials.

In the Northwest Territories, which includes the Districts of Mackenzie, Franklin and Keewatin, the aim of the territorial government is to provide educational opportunities for northern residents equivalent to those opportunities enjoyed by fellow citizens in Southern Canada.(4)

(4) For the addresses of provincial and territorial education departments, see Appendix II.

In establishing an education system in Canada's Northland, geographic and demographic elements are powerful factors that are helping to shape the changing educational structures. Some of these elements are: the Yukon and Northwest Territories area is massive and austere but fascinating, covering 1.5 million square miles (or 40 per cent of Canada's total land area); a sparse and scattered population (35,000 in the Northwest Territories and 17,000 in the Yukon) inhabited this vast land as of December 1970; from 1961 to 1970, the population increase in this largely unpeopled land was 39 per cent (slightly more than the 31 percent increase experienced by British Columbia); the Eskimos, Indians and Métis living in this land are not cultural minorities, as they are in the provinces, but constitute the majority. (The 35,000 in the Northwest Territories is broken down as follows: 13,000 Eskimos in varying stages of acculturation, living in small, scattered groups and speaking 20 dialects; almost 7,000 Indians in far-flung settlements, belonging to nine tribes; 5,000 Métis; and 10,000 "others".)

Such combined geographic and demographic characteristics have led to questions about school residences, transportation, language of instruction, relevant curriculum and school location. These characteristics explain the establishment of a school in so northerly a site as Grise Fiord, which is twice as close to the North Pole as it is to Ottawa (1,800 miles away) and closer to the U.S.S.R. than to Ottawa.

However, perhaps the chief determinant of change in the educational and social structures has been the political dimension: the direct administration of most Northwest Territories affairs was moved from Ottawa to Yellowknife in 1967; during 1969, the responsibility for education in the Mackenzie District was transferred to the new territorial government; the Eastern Arctic takeover occurred in 1970, the centennial year for the N.W.T. Of considerable significance to the education domain was the establishment in 1969 of a Northwest Territories Department of Education to ensure stability and continuity in education previously developed by the Northern Administration Branch of the former Indian Affairs and Northern Development Department. The end of the decade saw the growth of a modern school system that, spatially, must be one of the largest systems on the globe. This solidly-based system, as modern as those in Southern Canada, has rapidly begun building new schools at Edzo, Frobisher Bay, Baker Lake, Cape Dorset, Coral Harbour and Clyde River, and developing innovative curricular materials.

The development of innovative curricular materials relevant to the cultural heritage of Eskimo, Indian and Métis pupils has been one of the outstanding achievements in the Northwest Territories. These elementary materials have been adapted to meet the need of the native peoples. With the co-operation of the Department of Indian and Northern Affairs, a valuable project involving the collecting of stories and legends of the Dogrib people has begun. With the assistance of the Northern Co-ordination and Research Centre, a combined Dogrib grammar and dictionary is being produced. Increased use of native languages has had instructional, psychological and cultural benefits.

PART III

Federal Departments and Agencies

While education is primarily a responsibility of the provinces, the Federal Government is directly responsible for the education of Indians throughout Canada, inmates of federal prisons, and members of the Armed Forces and their children on military bases at home or overseas. In addition, some federal departments concerned with problems of national defence, manpower, social welfare and vocational training have become involved directly or indirectly in certain education services or have provided education facilities for specified groups. The following incomplete list includes only those departments most immediately concerned:

Department of External Affairs

The Cultural Affairs Division performs a liaison function in matters concerning education with international implications. Thus it is through this Division that the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Co-Operation and Development (OECD) maintain their official links with the Federal Government. The same may be said for liaison between Canada and the International Bureau of Education. Similarly, Canada's participation in the Commonwealth Education Liaison Committee and the regular Commonwealth Education Conference is organized by the same Division within the Department. As a function of its responsibility for the conduct of Canada's external relations, the Department of External Affairs has been charged with the negotiation and implementation of cultural agreements with foreign countries, which, among other things, provide for academic and scientific exchanges. The Department discharges these functions in close consultation with the Council of Ministers of Education. The Academic Relations Division promotes close relations between the Department and the universities in the area of international affairs.

Statistics Canada

The Education Division[5] is a national agency that acts in a co-ordinating and integrating role. The collecting, storing, disseminating and analysis of national education statistics at all levels serve to link the various isolated educational patterns across Canada into a single framework. This work is being strengthened by a computerized national integrated-information system the Division has begun to develop in collaboration with a network of educational institutions across Canada. It is expected that the recently-established Statistics Committee of the Council of Ministers of Education will improve the channels of communication and consultation between the provincial departments of education and the Education Division.

Ministry of State for Science and Technology

This new ministry, which was established by the Federal Government in 1971, is a policy-making department. Its object is to counsel the Federal Government on scientific and technical matters including: research and development; granting structures; relations between government and the industrial world, and government and university; and relations between Canada and other countries. In collaboration with the Department of External Affairs, the Ministry engages a scientific attaché to promote scientific and technological relations between Canada and other countries.

Department of Agriculture

The Information Division issues departmental publications, releases information to the press and radio, prepares motion pictures for screening and television use, and provides exhibits in this field for display at fairs and exhibitions. The federal Department of Agriculture sends information to the provincial agriculture representatives, who carry out a program of education directly with farmers. All agricultural colleges throughout Canada engage in research and extension work designed to assist the farmer through educational programs.

Canadian International Development Agency

This office is responsible for the administration of educational and technical assistance on a bilateral basis to other countries. Its divisions include Education, Manpower Resources, and Training Resources. The last-named provides training grants for Asian and African students. During 1970 there were about 1,397 students and 1,211 trainees from developing countries studying in Canada under CIDA auspices. About 700 Canadian teachers are working overseas under CIDA programs, mainly to improve indigenous educational capabilities.

An International Development Research Centre was established in 1970. Canadian-financed but international in character, the Centre will bring together experts from both the developed and developing

(5) A list of current publications of the Education Division, Statistics Canada, appears as Appendix III to this paper.

countries and provide them with resources to conduct research into the problems of the developing regions of the world.

Department of Finance	The Government Finance Division provides information concerning the availability of loans to students under the Canada Student Loans Plan.
Department of Indian and Northern Affairs	The Northern Development Branch is responsible for the education of Indians, Eskimos, Métis and others in Northern Canada. The Branch operates schools in Arctic Quebec. The Education Branch of the Indian-Eskimo Affairs Program provides schooling for Indian children living within the provinces, from kindergarten through university. Facilities are provided in either federal or provincial schools.
Department of Justice	The Inmate Training Division of the Canadian Penitentiary Service is responsible for education and training of penitentiary inmates.
Department of Manpower and Immigration	Arrangements are made with provincial governments, private schools and industry itself for continuing adult training. Candidates are directed to the appropriate place of training through the Department's Canada Manpower Centres spread from coast to coast. The arrangements include language training for immigrants not acquainted with either English or French. In addition, the Department of Manpower and Immigration assists the provinces by providing funds for research and development into continuing adult education. In 1967 the federal-provincial agreements for the training of the unemployed under the Technical and Vocational Training Act of 1961 were allowed to expire and the Adult Occupational Training Act was passed, under which the Federal Government takes full responsibility for financing the cost of training adults who are or should be in the labour force. If, in the opinion of a manpower counsellor, it is in the best interest of the individual and of the economy for an adult to undertake training or re-training, it will be purchased by Federal Government from a public or private training institution or from industry.
Department of National Defence	The Directorate of Dependents' Education is responsible for the provision of education facilities for the dependants of Canadian Armed Forces personnel at overseas bases.
Department of National Health and Welfare	This Department has charge of all matters related to the promotion and preservation of the health, social security and social welfare of the people of Canada over which the Parliament of Canada has jurisdiction. Divisions of the Welfare Branch include Social Aid and Unemployment Assistance. The Civil Defence College at Arnprior is the principal civil defence training centre in Canada. The Department also provides research grants to institutions of higher education.

The Fitness and Amateur Sport Program was inaugurated in 1961 to increase the number of participants at all levels of competitive and non-competitive physical recreation. Up to $5 million a year may be expended by Canada for these activities, which range from day-camps to the Olympic Games.

Public Archives

The purpose of the Public Archives is to assemble and make available to the public a comprehensive collection of source material relating to Canada's history and heritage. The main divisions deal with manuscripts, maps, pictures, books and storage of dormant government records. The Manuscript Division contains manuscript collections and public records, arranged in groups, including private papers of governors, intendants, explorers and missionaries, as well as a major part of the correspondence of leading Canadian statesmen. A central microfilm unit is attached to the Administration Division. Researchers have access to the Archives on a 24-hours-a-day basis.

Information Canada

This is a service agency concerned with the distribution of Government of Canada publications. Its functions include: the compilation and issue of monthly, annual and separate catalogues and price-lists; the sale of publications; the distribution of publications to designated depository libraries and to other institutions and persons entitled to receive them free; the maintenance of a complete mailing service for Government departments and agencies. A branch also has the exclusive agency in Canada for the sale of publications of international organizations such as the United Nations, UNESCO, the Food and Agriculture Organization, the World Health Organization, the Organization for Economic Co-operation and Development, the International Atomic Energy Agency, the Commonwealth Economic Committee and the Council of Europe.

Public Service Commission of Canada

One of the Commission's most challenging jobs is the bilingualization of the Public Service. In this unique program, the Language School uses the latest methods and equipment to provide intensive courses

(a) in conversational French for selected public servants. In addition to the schools located in the National Capital Region, training classes exist in Quebec City, Montreal and Toronto. The target year for functional bilingualism is 1975.

(b) The Operations Branch is responsible for the classification of positions, recruitment to the Public Service, and the administration of competitive examinations qualifying for entrance.

(c) The Advisory Services Branch studies the present and proposed organization and establishment of departments and agencies, conducts centralized training, and co-ordinates staff-training and developing

programs throughout the Service. It studies requests for educational leave and supervises the secretariat of the Suggestions Awards Board of the Public Service.

Department of the Secretary of State

The Department is responsible for administering Part II of the Federal-Provincial Fiscal Arrangements Act 1967 and its regulations. This includes responsibility for co-ordinating the Government's general concern with financing tertiary education. The latter is carried by the Education Support Branch in the Department. The Fiscal Arrangements Act, originally scheduled to expire in 1972, has since been extended to 1974. The complex matter of public support for post-secondary education is at present being studied by the federal and provincial governments with a view to investigating alternate solutions to this problem.

Department of Veterans Affairs

The Children of War Dead (Education Assistance) Act provides help in the form of allowances and the payment of fees for the post-secondary education of the children of persons whose deaths have been attributed to military service. Assistance is restricted to children attending education institutions in Canada that require secondary-school graduation matriculation or equivalent standing for admission, including, in addition to universities and colleges, such facilities as hospital schools of teaching and institutes of technology. This program is their only involvement in education.

Canadian Broadcasting Corporation

With the co-operation of the provincial departments of education, universities and others, the CBC produces radio and television programs at the elementary, secondary and tertiary levels. In September 1971, the CBC's English Services Division and the Council of Ministers of Education came to a five-year agreement that provided for the provinces to assume collectively an increasing share of the direct costs of the English-language national school broadcasts. This agreement calls for the provinces to assume 100 per cent of the direct costs by 1975. The CBC will continue to be responsible for all indirect costs, including facilities, production personnel and transmission of programs. A similar agreement is envisaged for 1973-74 with regard to French-language programming. The CBC Northern Service offers information programs in the Indian and Eskimo languages as well as in English and French. In addition, both the French and English services of the CBC publish and sell selected program texts.

Canada Council

This agency was created by the Government of Canada in 1957 to foster and promote the study, enjoyment of and production of works in the arts, humanities and social sciences. It carries out its task mainly through a broad program of grants and fellowships of

various types. With other organizations, it helps the Department of External Affairs implement Canada's cultural relations with other countries and administers, as a separate agency, the Canadian National Commission for UNESCO.

Canadian National Commission for UNESCO — This body advises the Government, through the Department of External Affairs, on the UNESCO program, provides liaison between UNESCO and Canadian agencies directly concerned in UNESCO's affairs and publicizes the work of UNESCO.

National Film Board — This agency produces education slides, film strips and films, with emphasis on Canadian content.

National Research Council — The Awards Office offers a program of postgraduate scholarships and postdoctorate fellowships. The scholarships permit graduates to work toward doctoral degrees at Canadian universities; the fellowships permit researchers with doctoral degrees to conduct research at Canadian universities and abroad. A wide range of fields are open.

PART IV

National Education Organizations

Local and provincial education associations with similar interests usually establish a national federation with a permanent staff to co-ordinate activities. The following is a partial list of the better-known organizations:

THE CANADIAN EDUCATION ASSOCIATION, dating from 1892, is supported by the ten provincial departments of education, by school-boards, and by individual members. It maintains an office in Toronto, publishes the review *Education Canada*, conducts an information service and maintains liaison among the provincial departments. It is a semi-official organization.

THE CANADIAN TEACHERS' FEDERATION was established in 1919 by the provincial teachers societies. Its membership today is over 210,000. The CTF, with headquarters in Ottawa, conducts an information service, undertakes research studies and maintains liaison among the provincial associations.

THE CANADIAN ASSOCIATION OF PROFESSORS OF EDUCATION draws its members from among the staffs of university faculties of education. It is one of the constituent organizations of the Canadian Society for the Study of Education, and conducts its activities within the framework of the Society.

THE CANADIAN SCHOOL TRUSTEES' ASSOCIATION and its constituent provincial associations hold annual conferences, publish professional magazines, and have fostered research in school finance. The CSTA was founded in 1922.

THE CANADIAN HOME AND SCHOOL AND PARENT-TEACHER FEDERATION, founded in 1927, holds annual conventions and provides leadership for provincial affiliates.

THE CANADIAN ASSOCIATION OF FRENCH-LANGUAGE EDUCATORS (ACELF), organized at Ottawa in 1947, is a group of French-language educators at the national level. Existing in the interests of French culture and Catholic teaching in Canada, it is a representative organization that presents its views to provincial and federal commissions and before international associations on education. The association publishes a bulletin, *L'ACELF*, about four times a year.

THE ASSOCIATION OF UNIVERSITIES AND COLLEGES OF CANADA brings together in voluntary association about 60 Canadian institutions of higher learning to foster the development of tertiary education. Constituted in 1965 by an Act of Parliament, AUCC is the successor to the National Conference of Canadian Universities and Colleges and its executive agency, The Canadian Universities Foundation. Membership is institutional, with associate membership open to national organizations of university personnel representing major academic or administrative divisions or interests within the universities. Since 1971, student and teaching staff representatives have become members of the AUCC Board.

THE CANADIAN ASSOCIATION OF UNIVERSITY TEACHERS, with its office in Ottawa, is an association of campus organizations of professors.

THE CANADIAN ASSOCIATION FOR ADULT EDUCATION conducts an information service, holds radio forums and conferences, and publishes *Continuous Learning*. Its permanent office is in Toronto. Its counterpart, L'INSTITUT CANADIEN D'EDUCATION DES ADULTES, with headquarters in Montreal, serves the same functions for French-speaking adults.

THE CANADIAN EDUCATIONAL RESEARCHERS ASSOCIATION (CERA), created in 1967, is a Canada-wide organization representing the needs and interests of individuals engaged in research and related activities. CERA initiates, promotes and supports education research and development.

THE ASSOCIATION OF CANADIAN COMMUNITY COLLEGES, with headquarters in Montreal, is composed of representatives from local and regional college boards, faculties, administrators and students.

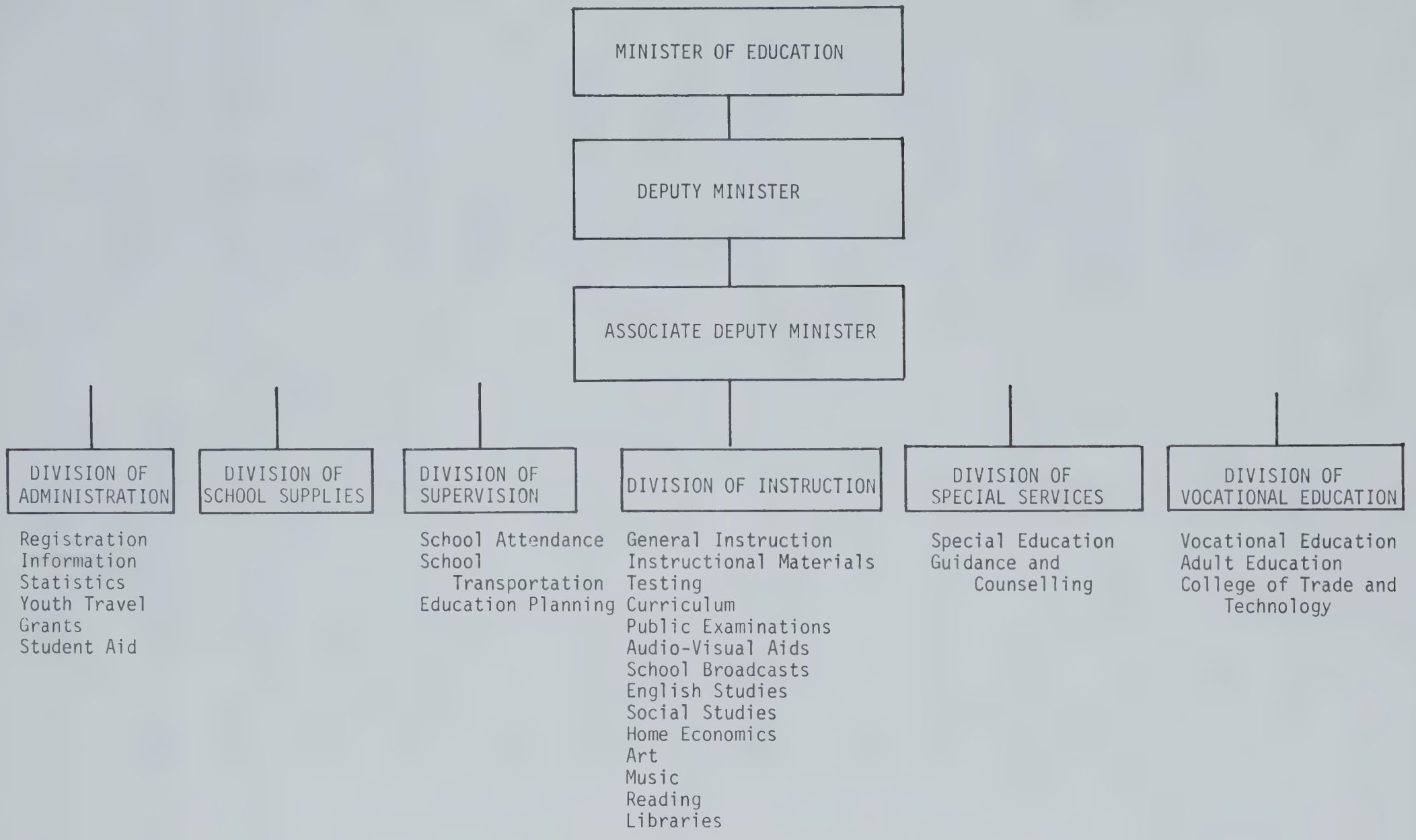
THE TRI-COUNCIL COMMITTEE is composed of a few senior members from the National Research Council, the Medical Research Council and the Canada Council. The Committee's main function is to keep each council informed of the others' research activities.

RP/A

Information Division Department of External Affairs Ottawa Canada

APPENDIX I

ORGANIZATIONAL STRUCTURE, NEWFOUNDLAND DEPARTMENT OF EDUCATION



APPENDIX II

ADDRESSES OF PROVINCIAL AND TERRITORIAL DEPARTMENTS OF EDUCATION

NEWFOUNDLAND	Department of Education Confederation Building ST. JOHN'S, Newfoundland
PRINCE EDWARD ISLAND	Department of Education Province House CHARLOTTETOWN, Prince Edward Island
NOVA SCOTIA	Department of Education Province House HALIFAX, Nova Scotia
NEW BRUNSWICK	Department of Education Legislative Building FREDERICTON, New Brunswick
QUEBEC	Le Ministère de l'éducation Édifice du parlement QUEBEC, P.Q.
ONTARIO	Department of Education Parliament Buildings TORONTO, Ontario
MANITOBA	Department of Education Legislative Building WINNIPEG, Manitoba
SASKATCHEWAN	Department of Education Legislative Building REGINA, Saskatchewan
ALBERTA	Department of Education Legislative Building EDMONTON, Alberta
BRITISH COLUMBIA	Department of Education Parliament Buildings VICTORIA, British Columbia
YUKON TERRITORY	Department of Education P.O. Box 2703 WHITEHORSE, Yukon Territory
NORTHWEST TERRITORIES	Department of Education Government of the Northwest Territories YELLOWKNIFE, Northwest Territories
COUNCIL OF MINISTERS OF EDUCATION, CANADA	Council of Ministers of Education, Canada 252 Bloor Street West Suite N1201 Toronto 181, Ontario

APPENDIX III

CURRENT PUBLICATIONS OF THE EDUCATION DIVISION

Persons wishing notices of new publications are invited to write to the Education Division, Statistics Canada

Catalogue		
	General	
81-001	Service Bulletin. Q., Bil.	25¢
81-201	Preliminary Statistics of Education. A., Bil.	75¢
81-220	Advance Statistics of Education. A., Bil.	50¢
81-515	A Graphic Presentation of Canadian Education. O., E. and F.	75¢
81-523	A Bibliographical Guide to Canadian Education. O., Bil.	75¢
81-524	Education Planning and the Expanding Economy. O., E. and F.	$1.00
81-526	Census and Other Data for Vocational Counsellors. 1961 Census, O., E. and F.	$1.00
81-530	Student Progress Through the Schools by Age and Grade. O., Bil.	75¢
81-535	The Organization and Administration of Public Schools in Canada. O., E.	$2.00
81-539	Organized Training in Four Industry Groups. O., E. and F.	75¢
81-542	Canadian Education Through Correspondence. O., Bil.	50¢
81-544	Directory of Private Schools. O., Bil.	75¢
81-545	Survey of Education in the Atlantic Provinces. O., Bil.	$2.00
81-546	Survey of Education in the Western Provinces. O., Bil.	$2.50
81-549	Education in Canada's Northland. O., Bil.	$1.00
81-550	A Century of Education in British Columbia: Statistical Perspectives. O., Bil.	$1.50
12-528	A Manual of Accounting for School Boards. O., E.	$1.00
	Financial Information	
81-208	Survey of Education Finance. A., Bil.	75¢
81-212	Canadian Universities, Income and Expenditure. A., Bil.	50¢
81-219	Tuition and Living Accommodation Costs at Canadian Degree-Granting Universities and Colleges. A., Bil.	25¢
	Student Information	
81-204	Survey of Higher Education, Part I: Fall Enrolment in Universities and Colleges. A., Bil.	$1.50
81-209	Survey of Vocational Education and Training. A., Bil.	$1.00
81-210	Survey of Elementary and Secondary Education. O., Bil.	$1.50
81-211	Degrees, Diplomas and Certificates Awarded by Canadian Degree-Granting Institutions. A., Bil.	$1.00
81-213	Statistics of Private Business Colleges. A., E.	25¢
81-214	Statistics of Private Trade Schools. A., Bil.	25¢
81-216	Interprovincial Movement of Children in Canada. O., Bil.	25¢
81-222	Canadian Community Colleges and Related Institutions. A., Bil.	75¢
81-541	Awards for Graduate Study and Research. O., Bil.	$4.00
81-543	Post-Secondary Student Population Survey. O., E. and F.	$1.50

Teacher Information

81-202 Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools. A., Bil. $1.00

81-203 Salaries and Qualifications of Teachers in Universities and Colleges. A., Bil. 75¢

81-215 Statistics of Private Elementary and Secondary Schools. A., Bil. 25¢

81-217 Enrolment and Staff in Schools for the Blind and Deaf. A., Bil. 25¢

81-221 Private Kindergarten and Nursery Schools in Canada. A., Bil. 25¢

81-527 Degrees held by Canadian University Teachers, Part I: Distribution by Rank, Faculty and Field. O., Bil. 75¢

Science Statistics

13-202 Federal Government Expenditures on Scientific Activities, Fiscal Year. A., Bil. 75¢

13-203 Industrial Research and Development Expenditures in Canada. A., Bil. $1.00

Cultural Information

* 81-205 Survey of Libraries, Part I: Public Libraries. A., Bil. 75¢

* 81-206 Survey of Libraries, Part II: Academic Libraries. A., Bil. 75¢

81-532 Survey of Libraries, Part III: Library Education. O., Bil. 50¢

* Out-of-print but available in many libraries

A. - Annual Q. - Quarterly O. - Occasional E. - English F. - French

Bil. - Bilingual

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CANADA

REFERENCE PAPERS

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 45
(Revised September 1972)

EDUCATION IN CANADA

(Prepared by Eve Kassirer, Education Division, Statistics Canada)

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PART I

General Information

Provincial Autonomy

In 1867, the British North American colonies that entered into Confederation insisted, as a condition of union, that education be strictly a provincial matter. Section 93 of the British North America Act, which provided that educational legislation should be the exclusive responsibility of provincial governments, applied originally to New Brunswick, Nova Scotia, Quebec and Ontario. It was applied in the same form, or a slightly altered one, to the provinces that subsequently entered Confederation: Manitoba (1870); British Columbia (1871); Prince Edward Island (1873); Saskatchewan and Alberta (1905); and Newfoundland (1949).

In Canada today, the provinces are responsible for the education of all persons *except:* inmates of federal penitentiaries; children of members of the Armed Forces on National Defence stations; and some Indian children attending schools administered by the Education Branch of the Department of Indian Affairs and Northern Development. The Federal Government, which is responsible for these groups, also provides grants to each province to be divided among its universities, community colleges and other tertiary (post-secondary) institutions, and participates to a considerable extent in informal education. It assists educational institutions indirectly by making grants-in-aid for research personnel and equipment, and by collecting, disseminating and analyzing education statistics.

The development of the Canadian educational enterprise under the auspices of the provincial governments has produced a school system second to none. There is equality of educational opportunity, and the illiteracy rate is so small as to be virtually non-existent. For all who have been to school, whether they have completed their courses or not, there are post-secondary and continuing education opportunities. In 1970-71, the total full-time enrolment in formal tertiary institutions was about 481,000. In the past five years, adult continuing education programs (credit and non-credit) for part-time students have expanded rapidly and enrolments increased even more quickly. In 1970-71, there were about 700,000 school-board registrants in

these courses in Canada. In addition, part-time enrolment at universities is increasing at a faster rate than full-time enrolment. The effect of this continuing education is one of constant improvement and development of the individual to the limit of his capacity. Newcomers to the country join readily in this educational activity and take advantage of the opportunities presented.

Provincial Education Departments

Educational organization, policies and practices differ from province to province. Each province has a department of education headed by a minister who is a member of the cabinet. Each department is administered by a deputy minister, who is a professional educationist and a public servant. He advises the minister, supervises the department, gives a measure of continuity to its policy and in general carries out that policy. He is also responsible for enforcing the public school act.

Departments of education may include the following additional members: a chief inspector of schools and his staff of local inspectors; directors or supervisors of instructional services, technical education, post-secondary services, and teacher training; a registrar of examinations and teacher certification; and other officials in charge of guidance, audio-visual education, correspondence education, curriculum development, and research.

The departments of education undertake, among other things, to provide:

(a) supervisory services to ensure maintenance of standards;

(b) training and certification of teachers;

(c) courses of study and prescribed or approved textbooks;

(d) financial assistance to local school-boards for the construction and operation of schools;

(e) regulations for the guidance of trustees and teachers.

The Department of Education in Newfoundland is an example of an existing provincial organization.(1)

In addition to the departments of education, some provinces have recently created independent departments specifically to serve the rapidly-expanding domain of tertiary education, consisting primarily of universities and community colleges. Thus one finds a Department of Colleges and Universities in Ontario; a Department of Colleges and Universities Affairs in Manitoba; and a Department of Advanced Education in Alberta. In Saskatchewan, a second department has been announced but not yet named. Quebec has created two directorates, one of which is responsible for universities and the other for colleges. British Columbia has created a new position under the Superintendent of Post-Secondary Services, called the Co-ordinator of Post-Secondary Services.

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(1) See Appendix I.

Council of Ministers of Education, Canada

The Council of Ministers of Education was established in 1967 with the concurrence of the ministers' respective governments. The Council is an interprovincial educational agency set up for co-ordination, information and liaison purposes, operating at the interprovincial and provincial-federal levels. Also, it is intimately involved, through the Department of External Affairs, in Canada's role in education internationally. Its basic aim is to enable the ministers to consult on such matters as are of common interest, and to provide a means for the fullest co-operation among provincial governments in areas of mutual interest and concern in education.

Interprovincial co-ordination is achieved mainly through the Council's committees and subcommittees, which consist of senior departmental officials working in the following areas: manpower programs, instructional media, post-secondary education, curriculum, and education statistics.

Although education is a provincial concern within Canada according to the Constitution, the Federal Government has become involved in this field as well; this necessitates co-operation between the Council and various federal departments and agencies.

Contacts have been established by the Council with the Department of the Secretary of State and a number of federal agencies reporting to the Secretary of State, such as the Canadian Broadcasting Corporation, the National Film Board and the Canadian Radio and Television Commission. Other federal contacts include the Departments of External Affairs, Manpower and Immigration, Indian and Northern Affairs, and National Health and Welfare, as well as Statistics Canada, the Canadian International Development Agency, the Canadian Commission for UNESCO[1] and the Preparatory Commission for Metric Conversion.

The Department of External Affairs maintains close liaison with the Council on all matters pertaining to Canada's international commitments in the field of education. With the increasing importance of education on a world-wide basis, Canada is called on to play a major role as a member of various international educational organizations. In this connection, the Department of External Affairs co-operates with the Council with regard to the selection of official delegates to represent the country at international education conferences, the selection of topics for discussion at such conferences and the preparation of working papers and reports for Canada. The Department of External Affairs also normally channels official communications from such international organizations as UNESCO, the International Bureau of Education, the International Institute for Educational Planning, the Organization for Economic Co-operation and Development, the Centre for Educational Research and Innovation, and the Commonwealth Education Liaison Committee, through the Council to the provincial departments of education.

The Council co-operates with various professional educational organizations in promoting the development of education in Canada.

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(1) The United Nations Educational, Scientific and Cultural Organization.

Local Units of Administration

As towns and cities developed, the original boards remained as units but provision was made in the acts for urban school-boards with more members and generally with a responsibility for both elementary and secondary schools, though in some districts separate boards are still to be found. In recent years, there has been a trend in rural and adjoining town areas to amalgamate boards into larger units of administration. In most provinces, school-board consolidation has been effected, resulting in a great reduction in the number of boards. Some examples are: New Brunswick 33 (formerly 400); Newfoundland 35 (formerly 300); and Ontario 185 (formerly 4,000). Similar kinds of consolidation have taken place across the nation generally. This reorganization has led to great improvements at the school-district and classroom levels.

Teaching Staff

Candidates in all provinces for elementary teacher certificates must have a minimum of high-school graduation and at least one year of professional training in a faculty of education or a teachers' college. The training usually consists of professional and academic courses and some time spent in practice teaching. Secondary-school teachers are generally university graduates who have taken an additional year in a college of education or who have graduated with a year in education. The trend is for the provincial departments of education to give the universities the responsibility for training elementary as well as secondary-school teachers. Teachers' colleges now exist apart from universities in only four provinces. Universities participate in the training of elementary-school teachers in Nova Scotia, New Brunswick, Ontario and Quebec, but in these four provinces there still exist government-administered teachers' colleges. In eight provinces for which data are available, about 11 per cent of those in elementary schools and 74 per cent of those in secondary schools have university degrees.

School Organization

The majority of elementary-school and secondary-school pupils in Canada are in public schools. About two per cent attend private schools. Each September, most six-year-old Canadian children enter an eight-grade elementary school. At about 14 years of age, nearly 90 per cent of these enter a regular four-year or five-year secondary school. From the graduates at this level, a limited number, about 13 per cent of those who began school, go on to college or university, where more than half of them pursue a three-year or four-year program leading to a bachelor's degree in arts or science. The remainder enrol in various professional courses, such as commerce, education, engineering, law and medicine. In addition, an increasing number (10 per cent) attend community colleges. In three provinces (British Columbia, Alberta and Quebec), comprehensive programs exist that offer university-parallel programs as well as the technological programs offered in other provinces.

The eight-four plan leading from Grade 1 to tertiary has been modified from time to time in all provinces and there are a number of variants to be found in Canada. For example, in some parts, at the beginning of the system, one kindergarten year has been added, and sometimes there are two. In

other places an extra year has been added to the high school, providing five rather than four years of secondary schooling. Junior high schools have been introduced and the resulting organization changed to a six-three-three or six-three-four plan. A fairly recent innovation is the establishment of what is generically called community colleges, discussed below. In the Province of Quebec, such schools are referred to as CEGEPs.

Historically, the secondary school was predominantly academic, preparing its students for entry to university. Until recently, vocational schools were limited almost entirely to the larger cities. Today, besides commercial and technical secondary schools, there are increasing numbers of composite and regional secondary schools that provide courses in home economics, agriculture, shop-work and commercial subjects, as well as the regular academic courses. The number of subjects offered has also greatly increased and the number of options available provides a wide choice for pupils with different abilities and aims. Considerable emphasis has been placed on music, art, physical education, guidance and group activities, but not at the expense of the basic subjects that provide a general foundation.

Interest is increasing in the education of exceptional children. Rapid progress in special education for gifted children takes the form of innovative, enriched and accelerated programs. In many cities there are classes for the hard-of-hearing, the partially blind, and others physically and mentally handicapped.

Vocational Education and Occupational Training

Vocational education and occupational training at the secondary level have grown considerably in the past ten years. Most regular secondary schools provide a limited number of options in such subjects as agriculture, home economics, shorthand and typing. Vocational, technical and commercial high schools are an integral part of the secondary-school systems of some provinces. Composite schools, whether urban or regional, usually provide several optional programs (in academic or technical subjects, agriculture, home economics and commerce), and may allow individual students to choose courses from different programs.

Provincial trade-schools are operated by the provinces to complement the work undertaken in vocational high schools. These are essentially trade-schools offering six-week to two-year courses, mostly at the secondary level. Some schools of this kind offer a wide range of courses, from engineering technology to stenography, and from business-machine operation to cooking.

Private trade-schools provide a wide variety of courses in such subjects as beauty culture and diesel engineering; they prepare students for occupations as different as postal clerk, musician or welder. There are over 225 private business colleges that train typists, stenographers, book-keepers, office-machine operators, secretaries and others. Most offer part-time and evening courses as well as full-time day courses, and a few offer correspondence courses.

Community Colleges and Related Institutions

Although universities have been and still are the predominant and traditional institutions offering tertiary education to secondary-school graduates, other structures exist in the form of community colleges and related institutions. Community colleges have certain characteristics more or less in common -- none grant degrees, all are oriented to community needs. Colleges offer one, two or three years of study beyond secondary school. The chief function of the colleges is not research but teaching. Many are public institutions stressing an open-door policy and are provincially controlled; others are private. Instruction available to both full-time and part-time students is offered during the day and in the evening.

There are over 100 community colleges, and these exist in an array of forms throughout Canada and within the provinces. Some are comprehensive, offering both university-parallel programs and technological training. Others offer programs in one category or the other.

About 65 provincial institutes of technology offer programs lasting from one to four years. Nursing education, which was once offered only in hospitals, is now given mainly at university but is also available at community and regional colleges. Courses at the master's level are offered at several universities.

There is an Association of Canadian Community Colleges, an agency useful to all levels of college organization across the country. Its board consists of directors, students, local college board members, faculty, administrators and others interested in a national perspective.

University Education

Most students entering a university do so after completing 11 to 13 years of elementary and secondary schooling. In from three to five years, courses of instruction lead to bachelors' degrees in arts, pure science and such professional fields as engineering, business administration, agriculture and education. Courses in law, theology, dentistry, medicine and some other subjects are longer, usually requiring for admission part or all of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is the master's or *licence*, at least one year beyond the first degree. The third is the doctorate, normally requiring at least two more years after the second degree.

Adult Continuing Education

Many opportunities are provided for further academic, vocational and cultural experience beyond the regular full-time classes in secondary schools, special adults return to regular full-time classes in secondary schools, special schools and post-secondary schools to upgrade and advance their education. Each province has developed its own programs, operated by local school-boards, provincial community colleges and institutes, universities, and voluntary and private organizations at the national, provincial and local levels.

Approximately 176,000 adults are taking part-time credit courses of study in school-board programs that lead to secondary-school graduation. An additional 274,000 adults attend other credit and non-credit general courses. Universities have become increasingly involved with provision of credit and non-credit courses to adults on a part-time basis. Interest in the part-time education sector is so great that part-time enrolments are increasing at a faster rate than full-time.

Many public and private institutions and organizations also sponsor informal public lectures, film-showings, guided tours, musical and dramatic performances and similar activities of an educational nature for adults. Workshops, conferences and residential adult education, as well as regular courses, help prepare those who staff these activities.

Financing Education

The cost of education in Canada for the year ended March 31, 1971, has been estimated at $6.5 billion, an amount that represents slightly more than 8 per cent of the gross national product. By comparison, in 1960 the cost of education represented 4.3 per cent of the GNP.

The Federal Government makes grants for provincial trade and technical schooling, tertiary education, and a variety of manpower programs. The provincial governments have provided the local school districts with either flat or incentive grants and special grants. Recently, several have adopted some sort of foundation program under which a minimum level of services is guaranteed after local authorities have applied the proceeds from a tax on an equalized assessment, the province making up the balance. A school district may levy to provide additional services.

In keeping with the provincial responsibility for elementary, secondary and tertiary education, as specified in the British North America Act, the cost of basic education for children of school age is borne by provincial, municipal and local administrations. The Federal Government contributes to some vocational training in the secondary schools and much of the post-secondary vocational training, and shares substantially in tertiary education costs.

The Federal Government pays the entire costs of educating Indians and Eskimos[1], members of the Armed Forces and their children, and some dependent children of the war dead and veterans.

Since 1964, a special program of federal loans to university students provides up to $1,000 a year to individual students, free of interest until after graduation.

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(1) See Pages 10 and 13-14.

Some 60 federal departments and agencies contribute to education in Canada, although the Federal Government has no responsibility for the organization and administration of education. It has, however, a vital interest in the level of education and skills of the population and the extent of scientific research carried on in Canada, realizing the effect of these on the national economy, the quality of life in Canada, and the individual.

PART II

Regional Characteristics of School Systems

The provinces, though independent in educational administration, may be grouped regionally for a better appreciation of their education systems.

Atlantic Provinces

(a) Newfoundland and Labrador (Nfld)
(b) Prince Edward Island (P.E.I.)
(c) Nova Scotia (N.S.)
(d) New Brunswick (N.B.)

The creation of the Maritime Union Study has recently quickened the interest in closer co-operation among the Atlantic Provinces. Much useful communication has resulted.

Compulsory school age is from six or seven to 15 or 16, depending on the province, but earlier enrolment is possible in kindergartens. Even younger children are admitted to pre-school programs in Nova Scotia and New Brunswick.

Length of school year is 195 days in three of the provinces. In P.E.I., the school year extends 200 days from the Tuesday following Labour Day until the last Friday in June. The interim period is the annual summer vacation. A ten-day break is given at Christmas and a one-week break at Easter.

Grade organization is the same in Nova Scotia, New Brunswick and Prince Edward Island: elementary to the end of Grade 6; junior high from Grade 7 to Grade 9; and senior high from Grade 10 to Grade 12. In Newfoundland, elementary may be up to Grade 6 or up to Grade 8, depending on the school, central high from Grade 7 to Grade 11, regional high from Grade 9 to Grade 11; and there are also some junior-senior high schools from Grade 7 to Grade 9 and from Grade 10 to Grade 11.

Kindergartens are a part of the public elementary-school system in most large urban centres in Nova Scotia and Newfoundland; some are included in private schools and many are privately operated. Most kindergartens accept only five-year-olds, but a growing number are accepting four-year-olds. There

are some nursery schools for children from three to five years of age, also mainly privately operated.

The area of *subject promotion* is being looked at on an experimental basis in P.E.I., and will be used as a springboard towards individualized instruction. In Nova Scotia, a pupil who fails to make satisfactory progress in one course but performs satisfactorily in others is permitted to take the work of the next grade in those courses he has passed. All four provinces are working toward a common organization that will eliminate grade promotion in favour of subject promotion using a "credit" system. A pupil will carry five or six subjects a year and build up 15 credits, for example, in order to be eligible for graduation.

The language of instruction in the schools of the Atlantic Provinces is English, but in New Brunswick French, as a second language, is compulsory beginning in Grade 5 and optional beginning in Grade 3. French-speaking pupils form 38 per cent of the student body in New Brunswick, and it is predicted that by 1971 pupils in French-speaking schools will be able to study every subject in French from Grade 1 to Grade 12.

Tertiary education includes both university and post-secondary non-university programs. Non-university programs are given at institutes of technology, colleges of fisheries and agriculture, and a community college. A New Brunswick Higher Education Commission was appointed to co-ordinate all tertiary education. The matter of university entrance is under intense review in all the Atlantic Provinces. Factors considered at present include: (a) secondary-school marks; (b) school assessment of pupil; and (c) the APEB (Atlantic Provinces Examination Board) examination results. Newfoundland withdrew from the APEB structure in June 1970 and offers its own provincial examination at the end of Grade 11.

Central Provinces

(a) Quebec
(b) Ontario

These two giants possess about 64 per cent of the population of Canada. Both have undergone rapid changes in their education systems during the 1960s.

The school system in Quebec operates by virtue of a unique compromise arrived at after more than a century of struggle between the two main ethnic groups, French and English. Some seven-eighths of the population is Catholic, and of the rest Protestants are most numerous.

The organization of the non-Catholic schools resembles that of other provinces and, while in the past the Catholic system was modeled to a large extent on the educational system in France, during the last decade the entire system has been reorganized along lines resembling the rest of the Canadian school-systems. Pupils are taught in French in the majority of Catholic schools and in English in the non-Catholic schools, with two or three exceptions. Private organizations finance and administer private

schools: elementary and secondary, classical colleges, commercial schools and establishments giving courses at the university level. Public schools depend on local taxes, to which are added provincial subsidies. These are free and accessible to all children of school age.

A most significant change in Quebec school administration occurred in 1964 with the setting-up of a unified public authority at the provincial level: a new Department of Education, with the Minister and Deputy Minister coming from the former Department of Youth. There are two Associate Deputy Ministers, one for the Catholic sector and one for the non-Catholic sector.

An emerging trend in Quebec is the increasing presence of a composite course with graduated options and promotion by subject-matter.

A structure for universal post-secondary education in Quebec was completed in 1969. Colleges of general and vocational education (abbreviated CEGEP) began to offer students an extra two or three years of technical training and academic education before they went to work, or as a prerequisite for entering university. There are more than 40 CEGEPs today, all except four French-language. These have swiftly transformed the structure of tertiary education. In addition, a new University of Quebec and a new Council of Universities are other important developments. Several universities and colleges are located in Quebec, offering a wide variety of degree, diploma certificate programs.

The education system in Arctic Quebec, which is administered by the Department of Indian and Northern Affairs, comprises ten schools with around 800 students at the elementary level.

Ontario has a 13-grade system, with provision also for kindergartens and pre-school enrolment. One of the latest developments is the employment of a credit system to cover the former Grades 9 to 12 leading to the secondary-school graduation diploma. This provides a means to more flexible schedule patterns with a view to greater freedom of pupil choice within an expanding range of subject offerings, even to the creation of individual timetables for pupils. A credit is defined as a course successfully completed, normally after 110 to 120 hours of scheduled time. The diploma (Grade 12 standing) is awarded after the successful completion of a minimum of 27 credits. Grade 13 counts as senior matriculation for admission to university, including teachers' colleges. For the vast majority of schools in Ontario, English is the language of instruction. However, school-boards may and do establish elementary schools (or classes, including kindergarten) that provide French-language instruction for French-speaking pupils.

Tertiary education includes many universities of varying complexity and post-secondary non-university education in the form of 20 provincial colleges of applied arts and technology (CAATs) and their branches. Tertiary education comes under the responsibility of the Department of Colleges and Universities.

Prairie Provinces

(a) Manitoba
(b) Saskatchewan
(c) Alberta

The history of the development of education in the Prairie Provinces shows why the administrative structures are similar. Before Saskatchewan and Alberta became provinces, their schools were administered from Manitoba and their teachers were trained there. In recent years, different political outlooks in these provinces have had an effect on educational administration, though educators in all three continue to press for common approaches and common textbooks in the core school subjects.

In Manitoba, under the Department of Education, local trustee boards are authorized to administer pre-school, primary and secondary programs. A new Department of Colleges and Universities Affairs has recently been appointed to administer all tertiary education (universities and community colleges).

In the Manitoba public schools (kindergarten through Grade 12), promotion is the responsibility of the local school authorities. There has been a movement away from final examinations and toward continuous evaluation. To gain entrance to a university, a student must present evidence that he has standing in at least three examinations of the High-School Examination Board and school standing in at least two others.

Saskatchewan has recently introduced its plan for a reorganized school system. The traditional 12 elementary-secondary grades have been replaced by four "divisions", each consisting of three years of school for a pupil making normal progress. In Divisions I and II, the principle of non-grading, involving the ideas of continuous progress and flexible promotion, has been adopted. Division III programs have been planned to meet the special needs of the 13-15 age-group, with the problems of emerging adolescence. For Division IV, major changes are contemplated in the total scope of courses offered and in the content and methods used within particular subject areas.

Saskatchewan, which at one time housed a large number of junior colleges, facilitated the affiliation of most of these with the one university in the province. Three collegial structures exist today, one offering a university-parallel program.

In addition to the Department of Education, a second department, designed to deal with all tertiary education, has been announced.

Education in Alberta is under constant review by the province's Commission on Educational Planning, charged with the broad task of predicting what Alberta society will be like educationally, socially and economically during the last third of the twentieth century. Innovations in recent years include: extensive experimentation in programs carried out at the local-school level; modern buildings, incorporating the latest design in instructional facilities; a growing trend towards the semester system and

other methods of dividing the school year; implementation of school television projects; and establishment of a system of community colleges to complement the universities and other post-secondary institutions. These community colleges offer both university-parallel and technological programs. A Department of Advanced Education has been created to administer all tertiary education.

British Columbia and the Territories

(a) British Columbia
(b) Yukon Territory
(c) Northwest Territories

Details of education programs in British Columbia are similar to those of the most advanced programs in the other provinces. These programs are administered under the following services: audio-visual, curriculum development, curriculum resources, research and standards, post-secondary, correspondence, guidance and teacher recruitment, and vocation. The Department of Education was reorganized in 1971, leading to major changes in departmental structure, including: elimination of the position of Superintendent of Education; transfer of the duties of the Superintendent to the Deputy Minister; and realignment of the duties of the various Assistant Superintendents in positions to be known as Superintendents of Educational Services. Under one of these, the Superintendent of Post-Secondary Services, a new position has been created called Co-ordinator of Post-Secondary Services.

In 1970 amendments to the Public Schools Act categorized all community colleges as comprehensive regional colleges with university-parallel courses, and strengthened, at the same time, province-wide co-ordination of post-secondary school and adult education. There are ten regional colleges, one city college, two private colleges and one institute of technology.

A major development for the 1970s, based on the report of the Commission on the Future of the Faculty of Education, is the revision of the academic program and administrative structure of the University of British Columbia's Faculty of Education. Among the 85 recommendations are such innovations as: adoption of a single five-year bachelor of education program; introduction of the "teaching associate" idea; a new master of pedagogy degree; and student participation in decision-making at the operational level.

The Yukon Department of Education uses the British Columbia curriculum and pattern of school organization. The territory is not classified as a province, and its education policy is controlled by a series of school ordinances issued by the Commissioner of the Yukon Territory. Such ordinances account for teachers' certificates, classification of schools, election of school trustees, general policy (school year, school hours, holidays, language of instruction -- mainly English, religious instruction, kindergartens, etc.), Department of Education examiners, adult occupational training, apprentice training, vocational rehabilitation of disabled persons, fitness and amateur sport regulations, students' grants, and others. Under the Commissioner, education policy is administered by a Department of Education

comprising a Superintendent of Schools, two Assistant Superintendents, and three other professional officials.

In the Northwest Territories, which includes the Districts of Mackenzie, Franklin and Keewatin, the aim of the territorial government is to provide educational opportunities for northern residents equivalent to those opportunities enjoyed by fellow citizens in Southern Canada.(2)

In establishing an education system in Canada's Northland, geographic and demographic elements are powerful factors that are helping to shape the changing educational structures. Some of these elements are: the Yukon and Northwest Territorial area is massive and austere but fascinating, covering 1.5 million square miles (or 40 per cent of Canada's total land area); a sparse and scattered population (35,000 in the Northwest Territories and 17,000 in the Yukon) inhabits this vast land (as of December 1970); from 1961 to 1970, the population increase in this largely unpeopled land was 39 per cent (slightly more than the 31 percent increase experienced by British Columbia); the Eskimos, Indians and Métis living in this land are not cultural minorities, as they are in the provinces, but constitute the majority. (The 35,000 in the Northwest Territories is broken down as follows: 13,000 Eskimos in varying stages of acculturation, living in small, scattered groups and speaking 20 dialects; almost 7,000 Indians in far-flung settlements, belonging to nine tribes; 5,000 Métis; and 10,000 "others".)

Such combined geographic and demographic characteristics have led to questions about school residences, transportation, language of instruction, relevant curriculum and school location. These characteristics explain the establishment of a school in such a northerly site as Grise Fiord, which is twice as close to the North Pole as it is to Ottawa (1,800 miles away) and closer to the U.S.S.R. than to Ottawa.

However, perhaps the chief determinant of change in the educational and social structures has been the political dimension: the direct administration of most Northwest Territories affairs was moved from Ottawa to Yellowknife in 1967; during 1969, the responsibility for education in the Mackenzie District was transferred to the new territorial government; the Eastern Arctic take-over occurred in 1970, the centennial year for the N.W.T. Of considerable significance to the education domain was the establishment in 1969 of a Northwest Territories Department of Education to ensure stability and continuity in education previously developed by the Northern Administration Branch of the former Indian Affairs and Northern Development Department. The end of the decade saw the blossoming of a modern school system that, spatially, must be one of the largest systems on the globe. This solidly-based system, as modern as those in Southern Canada, has rapidly begun building new schools at Edzo, Frobisher Bay, Baker Lake, Cape Dorset, Coral Harbour and Clyde River, and developing innovative curricular materials.

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(2) For the addresses of provincial and territorial education departments, see Appendix II.

The development of innovative curricular materials relevant to the cultural heritage of Eskimo, Indian and Métis pupils, has been one of the outstanding achievements in the Northwest Territories. These elementary materials have been adapted to meet the need of the native peoples. With the co-operation of the Department of Indian Affairs and Northern Development, a valuable project involving the collecting of stories and legends of the Dogrib people has begun. With the assistance of the Northern Co-ordination and Research Centre, a combined Dogrib grammar and dictionary is being produced. Increased use of native languages has had instructional, psychological and cultural benefits.

PART III

Federal Departments and Agencies

While education is primarily a responsibility of the provinces, the Federal Government is directly responsible for the education of Indians throughout Canada, inmates of federal prisons, and members of the Armed Forces and their children on military bases at home or overseas. In addition, some federal departments concerned with problems of national defence, manpower, social welfare and vocational training have become involved directly or indirectly in certain education services or have provided education facilities for specified groups. The following incomplete list includes only those departments most immediately concerned:

Department of External Affairs

The Cultural Affairs Division performs a liaison function in matters concerning education with international implications. Thus it is through this Division that the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Co-Operation and Development (OECD) maintain their official links with the Federal Government. The same may be said for liaison between Canada and the International Bureau of Education. Similarly, Canada's participation in the Commonwealth Education Liaison Committee and the regular Commonwealth Education Conference is organized by the same Division within the Department. As a function of its responsibility for the conduct of Canada's external relations, the Department of External Affairs has been charged with the negotiation and implementation of cultural agreements with foreign countries, which, among other things, provide for academic and scientific exchanges. The Department discharges these functions in close consultation with the Council of Ministers of Education. The Academic Relations Division promotes close relations between the Department and the universities in the area of international affairs.

Statistics Canada

The Education Division[3] is a national agency that acts in a co-ordinating and integrating role. The collecting, storing, disseminating and analysis of national education statistics at all levels serve to link the various isolated educational patterns across Canada into a single framework. This work is being strengthened by a computerized national integrated information system the Division has begun to develop in collaboration with a network of educational institutions across Canada. It is expected that the recently-established Statistics Committee of the Council of Ministers of Education will improve the channels of communication and consultation between the provincial departments of education and the Education Division.

Ministry of State for Science and Technology

This new ministry, which was established by the Federal Government in 1971, is a policy-making department. Its object is to counsel the Federal Government on scientific and technical matters including: research and development; granting structures; relations between government and the industrial world, and government and the university; and relations between Canada and other countries. In collaboration with the Department of External Affairs, the Ministry engages a scientific attaché to promote scientific and technological relations between Canada and other countries.

Department of Agriculture

The Information Division issues departmental publications, releases information to the press and radio, prepares motion pictures for screening and television use, and provides exhibits in this field for display at fairs and exhibitions. The federal Department of Agriculture sends information to the provincial agriculture representatives, who carry out a program of education directly with farmers. All agricultural colleges throughout Canada engage in research and extension work designed to assist the farmer through educational programs.

Canadian International Development Agency

This office is responsible for the administration of educational and technical assistance on a bilateral basis to other countries. Its divisions include Education, Manpower Resources, and Training Resources. The last-named provides training grants for Asian and African students. During 1970 there were about 1,397 students and 1,211 trainees from developing countries studying in Canada under CIDA auspices. About 700 Canadian teachers are working overseas under CIDA programs, mainly to improve indigenous educational capabilities.

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(3) A list of current publications of the Education Division, Statistics Canada, appears as Appendix III of this report.

An International Development Research Centre was established in 1970. Canadian-financed but international in character, the Centre will bring together experts from both the developed and developing countries and provide them with resources to conduct research into the problems of the developing regions of the world.

Department of Finance

The Government Finance Division provides information concerning the availability of loans to students under the Canada Student Loans Plan.

Department of Indian and Northern Affairs

The Northern Development Branch is responsible for the education of Indians, Eskimos, Métis and others in Northern Canada. The Branch operates schools in Arctic Quebec. The Education Branch of the Indian-Eskimo Affairs Program provides schooling for Indian children living within the provinces, from kindergarten through university. Facilities are provided in either federal or provincial schools.

Department of Justice

The Inmate Training Division of the Canadian Penitentiary Service is responsible for education and training of penitentiary inmates.

Department of Manpower and Immigration

Arrangements are made with provincial governments, private schools and industry itself for continuing adult training. Candidates are directed to the appropriate place of training through the Department's Canada Manpower Centres spread from coast to coast. The arrangements include language training for immigrants not acquainted with either English or French. In addition, the Department of Manpower and Immigration assists the provinces by providing funds for research and development into continuing adult education. In 1967 the federal-provincial agreements for the training of the unemployed under the Technical and Vocational Training Act of 1961 were allowed to expire and the Adult Occupational Training Act was passed, under which the Federal Government takes full responsibility for financing the cost of training adults who are or should be in the labour force. If, in the opinion of a manpower counsellor, it is in the best interest of the individual and of the economy for an adult to undertake training or re-training, it will be purchased by the Federal Government from a public or private training institution or from industry.

Department of National Defence

The Directorate of Dependents' Education is responsible for the provision of education facilities for the dependents of Canadian Armed Forces personnel at overseas bases.

Department of National Health and Welfare

This Department has charge of all matters related to the promotion and preservation of the health, social security and social welfare of the people of Canada over which the Parliament of Canada has jurisdiction. Divisions of the Welfare Branch include Social Aid and Unemployment Assistance. The Civil Defence College at Arnprior is the principal civil defence training centre in Canada. The Department also provides research grants to institutions of higher education.

The Fitness and Amateur Sport Program was inaugurated in 1961 to increase the number of participants at all levels of competitive and non-competitive physical recreation. Up to $5 million a year may be expended by Canada for these activities, which range from day-camps to the Olympic Games.

Public Archives

The purpose of the Public Archives is to assemble and make available to the public a comprehensive collection of source material relating to Canada's history and heritage. The main divisions deal with manuscripts, maps, pictures, books and storage of dormant government records. The Manuscript Division contains manuscript collections and public records, arranged in groups, including private papers of governors, intendants, explorers and missionaries, as well as a major part of the correspondence of leading Canadian statesmen. A central microfilm unit is attached to the Administration Division. Researchers have access to the Archives on a 24-hours-a-day basis.

Information Canada

This is a service agency concerned with the distribution of Government of Canada publications. Its functions include: the compilation and issue of monthly, annual and separate catalogues and price-lists; the sale of publications; the distribution of publications to designated depository libraries and to other institutions and persons entitled to receive them free; the maintenance of a complete mailing service for Government departments and agencies. A branch also has the exclusive agency in Canada for the sale of publications of international organizations such as the United Nations, UNESCO, the Food and Agriculture Organization, the World Health Organization, the Organization for Economic Co-operation and Development, the International Atomic Energy Agency, the Commonwealth Economic Committee and the Council of Europe.

Public Service Commission of Canada

(a) One of the Commission's most challenging jobs is the bilingualization of the Public Service. In this unique program, the Language School uses the latest methods and equipment to provide intensive courses in conversational French for selected public servants. In addition to the schools located in the National Capital Region, training classes exist in Quebec City, Montreal and Toronto. The target year for functional bilingualism is 1975.

(b) The Operations Branch is responsible for the classification of positions, recruitment to the Public Service, and the administration of competitive examinations qualifying for entrance thereto.

(c) The Advisory Services Branch studies the present and proposed organization and establishment of departments and agencies, conducts centralized training, and co-ordinates staff training and developing programs throughout the Service. It studies requests for educational leave and supervises the secretariat of the Suggestions Awards Board of the Public Service.

Department of the Secretary of State

The Department is responsible for administering Part II of the Federal-Provincial Fiscal Arrangements Act 1967 and its regulations. This includes responsibility for co-ordinating the Government's general concern with financing tertiary education. The latter is carried by the Education Support Branch in the Department. The Fiscal Arrangements Act, originally scheduled to expire in 1972, has since been extended to 1974. The complex matter of public support for post-secondary education is at present being studied by the federal and provincial governments with a view to investigating alternate solutions to this problem.

Department of Veterans Affairs

The Children of War Dead (Education Assistance) Act provides help in the form of allowances and the payment of fees for the post-secondary education of children of persons whose deaths have been attributed to military service. Assistance is restricted to children attending, in Canada, education institutions that require secondary-school graduation matriculation or equivalent standing for admission, including, in addition to universities and colleges, such facilities as hospital schools of teaching and institutes of technology. This program is their only involvement in education.

Canadian Broadcasting Corporation

With the co-operation of the provincial departments of education, universities and others, the CBC produces radio and television programs at the elementary, secondary and tertiary levels. In September 1971, the CBC's English Services Division and the Council of Ministers of Education came to a five-year agreement that provided for the provinces to assume collectively an increasing share of the direct costs of the English-language national school broadcasts. This agreement calls for the provinces to assume 100 per cent of the direct costs by 1975. The CBC will continue to be responsible for all indirect costs, including facilities, production personnel and transmission of programs. A similar agreement is envisaged for 1973-74 with regard to French-language programming. The CBC Northern Service offers information programs in the Indian and Eskimo languages as well as in English and French. In addition, both the French and English services of the CBC publish and sell selected program texts and promote the study, enjoyment of and production of works in the arts, humanities and social sciences. It carries out its task mainly through a broad program of

grants and fellowships of various types. With other organizations, it helps the Department of External Affairs implement Canada's cultural relations with other countries and administers, as a separate agency, the Canadian National Commission for UNESCO.

Canadian National Commission for UNESCO

This body advises the Government, through the Department of External Affairs, on the UNESCO program, provides liaison between UNESCO and Canadian agencies directly concerned in UNESCO's affairs and publicizes the work of UNESCO.

National Film Board

This agency produces education slides, film strips and films, with emphasis on Canadian content.

National Research Council

The Awards Office offers a program of postgraduate scholarships and postdoctorate fellowships. The scholarships permit graduates to work toward doctoral degrees at Canadian universities; the fellowships permit researchers with doctoral degrees to conduct research at Canadian universities and abroad. A wide range of fields are open.

PART IV

National Education Organizations

Local and provincial education associations with similar interests usually establish a national federation with a permanent staff to co-ordinate activities. The following is a partial list of the better-known organizations:

THE CANADIAN EDUCATION ASSOCIATION, dating from 1892, is supported by the ten provincial departments of education, by school-boards, and by individual members. It maintains an office in Toronto, publishes the *Canadian Education and Research Digest*, conducts an information service and maintains liaison among the provincial departments. It is a semi-official organization.

THE CANADIAN TEACHERS' FEDERATION was established in 1919 by the provincial teachers societies. Its membership today is over 250,000. The CTF, with headquarters in Ottawa, conducts an information service, undertakes research studies and maintains liaison among the provincial associations.

THE CANADIAN ASSOCIATION OF PROFESSORS OF EDUCATION draws its members from among the staffs of university faculties of education. It meets annually as part of the Convention of Learned Societies.

THE CANADIAN SCHOOL TRUSTEES' ASSOCIATION and its constituent provincial associations hold annual conferences, publish professional magazines, and have fostered research in school finance. The CSTA was founded in 1922.

THE CANADIAN HOME AND SCHOOL AND PARENT-TEACHER FEDERATION, founded in 1927, holds annual conventions and provides leadership for provincial affiliates.

THE CANADIAN ASSOCIATION OF FRENCH-LANGUAGE EDUCATORS (ACELF), organized at Ottawa in 1947, is a group of French-language educators at the national level. Existing in the interests of French culture and Catholic teaching in Canada, it is a representative organization that presents its views to provincial and federal commissions and before international associations on education. The association publishes a bulletin, *L'ACELF*, about four times a year.

THE ASSOCIATION OF UNIVERSITIES AND COLLEGES OF CANADA brings together in voluntary association about 60 Canadian institutions of higher learning to foster the development of tertiary education. Constituted in 1965 by an Act of Parliament, AUCC is the successor to the National Conference of Canadian Universities and Colleges and its executive agency, The Canadian Universities Foundation. Membership is institutional, with associate membership open to national organizations of university personnel representing major academic or administrative divisions or interests within the universities. Since 1971, student and teaching staff representatives have become members of the AUCC Board.

THE CANADIAN ASSOCIATION OF UNIVERSITY TEACHERS, with its office in Ottawa, is an association of campus organizations of professors.

THE CANADIAN ASSOCIATION FOR ADULT EDUCATION conducts an information service, holds radio forums and conferences, and publishes *Continuous Learning*. Its permanent office is in Toronto. Its counterpart, L'INSTITUT CANADIEN D'EDUCATION DES ADULTES, with headquarters in Montreal, serves the same functions for French-speaking adults.

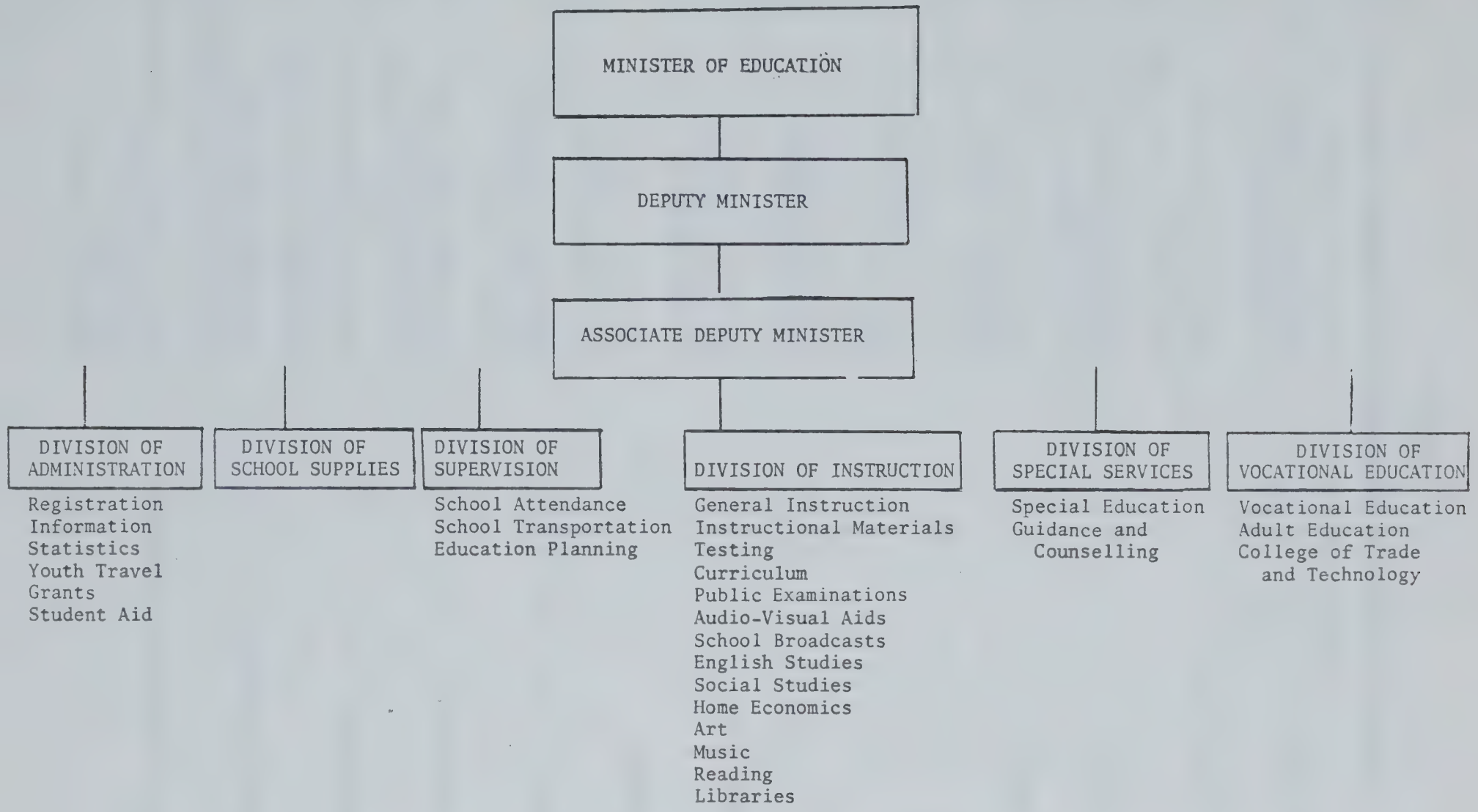
THE CANADIAN COUNCIL FOR RESEARCH IN EDUCATION, with headquarters in Ottawa, has an executive body made up of representatives of most of the foregoing associations that are interested in research. It was established to promote and foster research in education and to maintain liaison throughout the field. In 1967, it sponsored the formation of the CANADIAN EDUCATIONAL RESEARCHERS ASSOCIATION (CERA), a Canada-wide organization to represent the needs and interests of individuals engaged in research and related activities. CERA initiates, promotes and supports education research and development.

THE ASSOCIATION OF CANADIAN COMMUNITY COLLEGES, with headquarters in Montreal, is composed of representatives from local and regional college boards, faculties, administrators and students.

THE TRI-COUNCIL COMMITTEE is composed of a few senior members from the National Research Council, the Medical Research Council and the Canada Council. The Committee's main function is to keep each council informed of the others' research activities.

APPENDIX I

ORGANIZATIONAL STRUCTURE, NEWFOUNDLAND DEPARTMENT OF EDUCATION



APPENDIX II

ADDRESSES OF PROVINCIAL AND TERRITORIAL DEPARTMENTS OF EDUCATION

NEWFOUNDLAND	Department of Education Confederation Building ST. JOHN'S, Newfoundland
PRINCE EDWARD ISLAND	Department of Education Province House CHARLOTTETOWN, Prince Edward Island
NOVA SCOTIA	Department of Education Province House HALIFAX, Nova Scotia
NEW BRUNSWICK	Department of Education Legislative Building FREDERICTON, New Brunswick
QUEBEC	Le Ministère de l'éducation Edifice du parlement QUEBEC, P.Q.
ONTARIO	Department of Education Parliament Buildings TORONTO, Ontario
MANITOBA	Department of Education Legislative Building WINNIPEG, Manitoba
SASKATCHEWAN	Department of Education Legislative Building REGINA, Saskatchewan
ALBERTA	Department of Education Legislative Building EDMONTON, Alberta
BRITISH COLUMBIA	Department of Education Parliament Buildings VICTORIA, British Columbia
YUKON TERRITORY	Department of Education P.O. Box 2703 WHITEHORSE, Yukon Territory
NORTHWEST TERRITORIES	Department of Education Government of the Northwest Territories YELLOWKNIFE, Northwest Territories
COUNCIL OF MINISTERS OF EDUCATION, CANADA	Council of Ministers of Education, Canada 252 Bloor Street West Suite N1201 Toronto 181, Ontario

APPENDIX III

CURRENT PUBLICATIONS OF THE EDUCATION DIVISION

Persons wishing notices of new publications are invited to write to the Education Division, Statistics Canada

Catalogue	General
81-001	Service Bulletin, Q., Bil. 25¢
81-201	Preliminary Statistics of Education. A., Bil. 75¢
81-220	Advance Statistics of Education. A., Bil. 50¢
81-515	A Graphic Presentation of Canadian Education. O., E. and F. 75¢
81-523	A Bibliographical Guide to Canadian Education. O., Bil. 75¢
81-524	Education Planning and the Expanding Economy. O., E. and F. $1.00
81-526	Census and Other Data for Vocational Counsellors. 1961 Census, O., E. and F. $1.00
81-530	Student Progress Through the Schools by Age and Grade. O., Bil. 75¢
81-535	The Organization and Administration of Public Schools in Canada. O., E. $2.00
81-539	Organized Training in Four Industry Groups. O., E. and F. 75¢
81-542	Canadian Education Through Correspondence. O., Bil. 50¢
81-544	Directory of Private Schools. O., Bil. 75¢
81-545	Survey of Education in the Atlantic Provinces. O., Bil. $2.00
81-546	Survey of Education in the Western Provinces. O., Bil. $2.50
81-549	Education in Canada's Northland. O., Bil. $1.00
81-550	A Century of Education in British Columbia: Statistical Perspectives. O., Bil. $1.50
12-528	A Manual of Accounting for School Boards. O., E. $1.00
	Financial Information
81-208	Survey of Education Finance. A., Bil. 75¢
81-212	Canadian Universities, Income and Expenditure. A., Bil. 50¢
81-219	Tuition and Living Accommodation Costs at Canadian Degree-Granting Universities and Colleges. A., Bil. 25¢
	Student Information
81-204	Survey of Higher Education, Part I: Fall Enrolment in Universities and Colleges. A., Bil. $1.50
81-209	Survey of Vocational Education and Training. A., Bil. $1.00
81-210	Survey of Elementary and Secondary Education. O., Bil. $1.50
81-211	Degrees, Diplomas and Certificates Awarded by Canadian Degree-Granting Institutions. A., Bil. $1.00
81-213	Statistics of Private Business Colleges. A., E. 25¢
81-214	Statistics of Private Trade Schools. A., Bil. 25¢
81-216	Interprovincial Movement of Children in Canada. O., Bil. 25¢
81-222	Canadian Community Colleges and Related Institutions. A., Bil. 75¢
81-541	Awards for Graduate Study and Research. O., Bil. $4.00
81-543	Post-Secondary Student Population Survey. O., E. and F. $1.50

APPENDIX III (Continued)

Teacher Information

81-202 Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools. A., Bil. $1.00
81-203 Salaries and Qualifications of Teachers in Universities and Colleges. A., Bil. 75¢
81-215 Statistics of Private Elementary and Secondary Schools. A., Bil 25¢
81-217 Enrolment and Staff in Schools for the Bling and Deaf. A., Bil. 25¢
81-221 Private Kindergarten and Nursery Schools in Canada. A., Bil. 25¢
81-527 Degrees held by Canadian University Teachers, Part I: Distribution by Rank, Faculty and Field. O., Bil. 75¢

Science Statistics

13-202 Federal Government Expenditures on Scientific Activities, Fiscal Year. A., Bil. 75¢
13-203 Industrial Research and Development Expenditures in Canada. A., Bil. $1.00

Cultural Information

* 81-205 Survey of Libraries, Part I: Public Libraries. A., Bil. 75¢
* 81-206 Survey of Libraries, Part II: Academic Libraries. A., Bil. 75¢
81-532 Survey of Libraries, Part III: Library Education. O., Bil. 50¢

* Out-of-print but available in many libraries

A.-Annual Q.-Quarterly O.-Occasional E.-English F.-French Bil.-Bilingual

In addition to the selected publications listed above, Statistics Canada publishes a wide range of statistical reports on Canadian economic and social affairs. A comprehensive catalogue of all current publications is available free on request from Statistics Canada, Ottawa (Canada), K1A 0T6.

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CANADA

REFERENCE PAPERS

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

UNIVERSITY OF ILLINOIS
APR -1 1970
LIBRARY

No. 45
(Revised January 1970)

THE CANADIAN SYSTEM OF EDUCATION

(Prepared by Dr. William H. Lucow, Education Division, Dominion Bureau of Statistics.)

Part I

General Comments

Provincial Autonomy

In 1867, the British North American colonies that entered into Confederation insisted, as a condition of union, that education be strictly a provincial matter. Section 93 of the British North America Act,which provided that educational legislation should be the exclusive responsibility of each provincial government, applied originally to New Brunswick, Nova Scotia, Quebec and Ontario. It was applied in the same or in a slightly altered form to the provinces that subsequently entered Confederation: Manitoba (1870); British Columbia (1871), Prince Edward Island (1873), Saskatchewan and Alberta (1905), and Newfoundland (1949).

In Canada today, the provinces are responsible for the education of all persons except Indians, Eskimos, children in the territories, inmates of federal penitentiaries and children of members of the Armed Forces on National Defence stations. The Federal Government, which is responsible for these groups, also provides grants to each province to be divided among its universities and other post-secondary institutions, and participates to a considerable extent in informal education. It makes grants in aid for research personnel and equipment that assist educational institutions indirectly.

The development of the Canadian educational enterprise under the auspices of the provincial governments has produced a school system second to none throughout the world. There is equality of educational opportunity, and the illiteracy rate is so small as to be considered non-existent. For all who have been to school, whether they have completed their course or not, there are post-secondary and post-school educational opportunities of which many have taken advantage. In 1968-69 the total enrolment in formal post-secondary institutions was about 400,000 (not including the many thousands in non-credit

adult education courses). The effect of this continuing educational opportunity is one of constant improvement and development of the individual to the limit of his capacity. Newcomers to the country join readily in this educational resource and take advantage of the opportunities presented.

Provincial Education Departments

Educational organization, policies and practices differ from province to province. Each province has a department of education headed by a minister who is a member of the cabinet. Ontario has, in addition, a Department of University Affairs under its Minister of Education. Each department is administered by a deputy minister, who is a professional educationist and a public servant. He advises the minister, supervises the department, gives a measure of continuity to its policy and in general carries out that policy and is responsible for enforcing the public school act.

A typical department of education includes the following additional members: a chief inspector of schools and his staff of local inspectors; directors or supervisors of curricula, technical education, and teacher training; a registrar of examinations and teacher certification; and other officials in charge of guidance, audio-visual education, correspondence education, and adult education.

The department of education undertake among other things to provide:

(a) supervisor services to ensure maintenance of standards;
(b) training and certification of teachers;
(c) courses of study and prescribed or approved textbooks;
(d) financial assistance to local school-boards for the construction and operation of schools;
(e) regulations for the guidance of trustees and teachers.

The Department of Education in Alberta may be considered a model of existing provincial organization.(1)

Local Units of Administration

In all provinces, school laws provide for the establishment and operation of schools by local education boards, which operate under the public schools act and are held responsible to the provincial government and resident ratepayers for the actual operation of the local schools. Through the delegation of authority, education becomes a provincial-local partnership, with the degree of centralization changing from time to time.

From the earliest times, the provincial departments delegated authority to publicly elected or appointed boards, which functioned as corporations under the school acts and regulations. These boards were expected to establish and maintain a school, choose a qualified teacher, prepare a budget for the annual meeting of ratepayers and present it to the municipal authorities.

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(1) See Appendix I.

As towns and cities developed, the original boards remained as units but provision was made in the acts for urban school-boards with more members and generally with a responsibility for both elementary and secondary schools, though in some districts separate boards are still to be found. In recent years, there has been a trend in rural and adjoining town areas to amalgamate boards into larger units of administration, particularly for secondary schools.

Teachers

Candidates for elementary teacher certificates in all provinces must have a minimum of high-school graduation and at least one year of professional training in a faculty of education or a teachers' college. The training usually consists of professional and academic courses and some time spent in practice teaching. Secondary-school teachers are generally university graduates who have taken an additional year in a college of education or who have graduated with a year in education. The trend is for the government departments of education to give the universities the responsibility for training elementary as well as secondary-school teachers. Teachers' colleges now exist apart from universities in only four provinces. In eight provinces for which data are available, about 11 per cent of those in elementary schools and 74 per cent of those in secondary schools have university degrees.

School Organization

Kindergartens are a part of the public elementary-school system in most large urban centers; some are included in private schools and many are privately operated. Most kindergartens accept only five-year-olds, but a growing number are accepting four-year-olds. There are some nursery schools for children from three to five years of age, also mainly privately operated.

The majority of elementary-school and secondary-school pupils in Canada are in public schools. Less than 4 per cent attend private schools. Each September, most six-year-old Canadian children enter an eight-grade elementary school. At about 14 years of age, nearly 90 per cent of these enter a regular four-or-five-year secondary school. From the graduates at this level, a limited number, about 13 per cent of those who began school, go on to college or university, where rather more than half of them pursue a three-or-four year program leading to a bachelor's degree in arts or science. The remainder enrol in various professional courses such as commerce, education, engineering, law, medicine and so on.

The 8-4 plan leading from Grade 1 to university has been modified from time to time in all provinces and there are a number of variants to be found in Canada. For example, in some parts, at the beginning of the system, one kindergarten year has been added, and sometimes there are two. In other placesan extra year has been added to the high school, providing five rather than four years of secondary schooling. Junior high schools have been introduced and the resulting organization changed to a 6-3-3 or 6-3-4 plan. A fairly recent innovation is the establishment of junior colleges, in which at least one or two years of high school and the first one or two years of college are given. Some of these institutions offer vocational as well as academic programs. In the Province of Quebec such schools are referred to as CEGEPs.

Historically, the secondary school was predominantly academic, preparing its students for entry to university. Until recent years, vocational schools were limited almost entirely to the larger cities. Today, besides commercial and vocational high schools, there are increasing numbers of composite and regional high schools that provide courses in home economics, agriculture, shopwork and commercial subjects, as well as the regular academic courses. The number of subjects offered has also greatly increased and the number of options available provides a wide choice for pupils with different abilities and aims. Considerable emphasis has been placed on music, art, physical education, guidance and group activities, but not at the expense of the basic subjects which provide a general foundation.

Interest is increasing in the education of exceptional children. In many cities there are classes for the hard-of-hearing, the partially blind, and others physically and mentally handicapped, and there are a few for highly-gifted students.

Vocational and Technical Education

Vocational and technical education at both the secondary and post-secondary levels has grown considerably in the past ten years. Some 65 institutes of technology offer courses of from one to four years, with junior matriculation or the equivalent as the minimum qualification for entrance. Graduates from these institutions, commonly called technicians, fall between university-trained scientific personnel and skilled labor. More than 30 trade and vocational schools, mostly in Quebec and Ontario, provide either complete post-secondary courses or the first year or two of such courses.

Most regular secondary schools provide a limited number of options in such subjects as agriculture, home economics, shorthand and typing. Vocational, technical and commercial high schools are an integral part of the high-school systems of some provinces. Composite schools, whether urban or regional, usually provide several optional programs (in academic or technical subjects, agriculture, home economics and commerce), and may allow individual students to choose courses from different programs.

Provincial trade-schools and institutes of technology are operated by the provinces to complement the work undertaken in vocational high schools. Some of these are clearly post-secondary institutes with courses designed to prepare highly-skilled technicians for a variety of fields. Others are essentially trade-schools offering six-week to two-year courses, mostly at the secondary level. Some schools of this kind offer a wide range of courses, from engineering technology to stenography, and from business-machine operation to cooking.

Private trade-schools provide a wide variety of courses in such subjects as beauty culture and diesel engineering; they prepare students for occupations as different as postal clerk, musician or welder. There are over 225 private business colleges that train typists, stenographers, bookkeepers, office-machine operators, secretaries and other. Most offer part-time and evening courses as well as full-time day courses, and a few offer correspondence courses.

Nursing education is provided in post-secondary schools of nursing attached to the larger hospitals, some 20 of which are attached to universities. Advanced training is available at several universities.

Higher Education

Most students enter a university after completing 11 to 13 years of elementary and secondary schooling. In from three to five years, courses of instruction lead to a bachelor's degree in arts, pure science and such professional fields as engineering, business administration, agriculture and education. Courses in law, theology, dentistry, medicine and some other subjects are longer -- usually requiring for admission part, or all, of a first degree course in arts or science. For those pursuing graduate studies and research, the second degree is the master's or licence -- at least one year beyond the first degree -- and the third is the doctorate, normally requiring at least two additional years beyond the second degree.

Adult Education

Many opportunities are provided for further academic, vocational and cultural experiences beyond the regular full-time school-system, and large numbers of adults return to regular full-time classes in secondary schools, special schools and post-secondary schools to upgrade and advance their education. Each province has developed its own programs, operated by a local school-board, provincial schools and institutes, universities, and voluntary and private organizations at national, provincial and local levels.

Many public and private institutions and organizations also sponsor informal public lectures, film-showings, guided tours, musical and dramatic performances and similar activities of an educational nature for adults. Workshops, conferences and residential adult education, as well as regular courses, help prepare those who staff these activities.

Financing Canadian Education

The percentage of Canada's gross national product directed to education rose from 1.5 in 1944 to an estimated 9.0 in 1969. The Federal Government makes grants for provincial trade and technical schooling, university education, and for a variety of manpower programs. The provincial governments have provided the local school districts with either flat or incentive grants and special grants. Recently, several have adopted some sort of foundation program under which a minimum level of services is guaranteed after local authorities have applied the proceeds from a tax on an equalized assessment, the province making up the balance. A school district may levy to provide additional services.

In keeping with the provincial responsibility for academic, elementary and secondary education, as specified in the BNA Act, the cost of basic education for children of school age is borne by provincial, municipal and local administrations. The Federal Government contributes to some vocational training in the high schools and much of the post-secondary vocational training, and shares substantially in higher-education costs.

The Federal Government pays the entire costs of educating Indians and Eskimos, members of the Armed Forces and their children, and some dependent children of the war dead and of veterans.

Since 1964, a special program of federal loans to university students provides up to $1,000 a year to individual students, free of interest until after graduation.

Part II

Regional Characteristics of School Systems

The provinces, though independent in educational administration, may be grouped regionally for a better appreciation of their education systems.

Atlantic Provinces

(a) Newfoundland and Labrador (Nfld)
(b) Prince Edward Island (P.E.I.)
(c) Nova Scotia (N.S.)
(d) New Brunswick (N.B.)

The creation of the Maritime Union Study has recently quickened the interest in closer co-operation among the Atlantic Provinces. Much useful communication has resulted.

Compulsory school age is from 6 or 7 to 15 or 16, depending on the province, but earlier enrolment is possible in kindergartens. Even younger children are admitted to pre-school programs in Nova Scotia and New Brunswick.

Length of school year is 195 days in three of the provinces. In P.E.I., the school year extends 200 days from the Tuesday following Labor Day until the last Friday in June. The interim period is the annual summer vacation. A 10-day break is given at Christmas and a one-week break at Easter.

Grade organization is the same in Nova Scotia, New Brunswick, and Prince Edward Island: elementary to the end of Grade 6; junior high from 7 to 9; and senior high from 10 to 12. In Newfoundland, elementary may be up to 6 or up to 8 depending on the school, central high from 7 to 11, regional high from 9 to 11, and there are also some junior-senior high schools from 7 to 9 and from 10 to 11.

The area of subject promotion is being looked at on an experimental basis in P.E.I., and will be used as a springboard towards individualized instruction. In Nova Scotia, a pupil who fails to make satisfactory progress in one course but who performs satisfactorily in others is permitted to take the work of the next grade in those courses he has passed. All four provinces are working toward a common organization that will eliminate grade promotion in favor of subject promotion using a "credit" system. A student will carry five or six subjects a year and build up, say, 15 credits in order to be eligible for graduation.

The language of instruction in the schools of the Atlantic Province is English, but in New Brunswick French, as a second language, is compulsory beginning in Grade 5 and optional beginning in Grade 3. French-speaking students form 38 per cent of the student body in New Brunswick, and it is predicted that by 1971 students in French-speaking schools will be able to study every subject in French from Grade 1 to 12.

The matter of university entrance is under intense review in all the Atlantic Provinces. Factors considered at present include (a) high-school marks, (b) school assessment of student, and (c) the APEB (Atlantic Provinces Examination Board) examination results. Newfoundland is withdrawing from the APEB structure in June 1970, and will offer its own provincial examinations at the end of Grade 11.

Central Provinces

(a) Quebec
(b) Ontario

These two giants possess about 64 per cent of the population of Canada. Both have undergone rapid changes in their education systems during the 1960s.

The school system in Quebec operates by virtue of a compromise unique in its kind, arrived at after more than a century of struggle between the two main ethnic groups, French and English. Some seven-eighths of the population are Catholic and, of the rest, the Protestants are the most numerous.

The organization of the non-Catholic schools resembles that of other provinces, and, while, in the past, the Catholic system was modeled to a large extent on the educational system in France, during the last decade the entire system has been reorganized along lines resembling the rest of the Canadian school-systems. Pupils are taught in French in the majority of Catholic schools and in English in the non-Catholic schools, with two or three exceptions. Private organizations finance and administer private schools: elementary and secondary, classical colleges, commercial schools and establishments giving courses at the university level. Public schools depend on local taxes, to which are added provincial subsidies. These are free and accessible to all children of school age.

A most significant change in Quebec school administration occurred in 1964 with the setting-up of a unified public authority at the provincial level: a new Department of Education, with the Minister and Deputy Minister coming from the former Department of Youth. There are two Associate Deputy Ministers, one for the Catholic sector and one for the non-Catholic sector.

A structure for universal post-secondary education in Quebec was completed in 1969. Colleges of general and vocational education, abbreviated CEGEP, began to offer students an extra two or three years of technical training before they went to work or entered university. More than 30 CEGEPs are planned by 1970-71. A new University of Quebec and a new Council of Universities are probably the most important developments since 1968.

In Ontario, while provincial administration is not organized along ethnic lines, a divisional board of education, public-school board or separate-school board may establish and maintain elementary schools or classes in elementary schools, including kindergarten classes, for the purpose of providing for the use of the French language in instruction of French-speaking pupils. For the vast majority of schools in Ontario, English is the language of instruction.

Ontario has a 13-grade system, with provision also for kindergartens and pre-school enrolment. One of the latest developments is the employment of a credit system to cover the former Grades 9-12 leading to the Secondary School Graduation Diploma. This will provide a means to more flexible schedule patterns with a view to greater freedom of student choice within an expanding range of subject offerings, even to the creation of individual timetables for students. A credit is defined as a course successfully completed, normally after 110 to 120 hours of scheduled time. The Diploma (Grade 12 standing) is awarded after the successful completion of a minimum of 27 credits. Grade 13 counts as senior matriculation to university and to teachers' colleges.

Ontario is unique among the provinces in having a Department of University Affairs apart from the Department of Education.

Prairie Provinces

(a) Manitoba
(b) Saskatchewan
(c) Alberta

The history of the development of education in the Prairie Provinces shows why the administrative stuctures are similar. Before Saskatchewan and Alberta became provinces, their schools were administered from Manitoba and their teachers were trained there. In recent years, different political outlooks in these provinces have had an effect on educational administration, though educators in all three continue to press for common approaches and common textbooks in the core school subjects.

In Manitoba, local trustee boards are authorized to administer pre-school, primary and secondary programs; technical-vocational education at the post-secondary level is the direct responsibility of the provincial Department of Youth and Education; and university education is the independent responsibility of the three universities themselves.

In the Manitoba public schools (Grades 1 through 12), promotion is the responsibility of the local school authorities. There has been a movement away from final examinations and toward continuous evaluation. To gain entrance to a university, a student must present evidence that he has standing in at least three examinations of the High-School Examination Board and school standing in at least two others.

Saskatchewan has recently intoduced its plan for a reorganized school-system. The traditional 12 elementary-secondary grades have been replaced by four "divisions", each consisting of three years of school for a student making normal progress. In Divisions I and II, the principle of non-grading, involving the ideas of continuous progress and flexible promotion, has been adopted. Division III programs have been planned to meet the special needs of the 13-15 age-group, with the problems of emerging adolescence. For Division IV, major changes are contemplated in the total scope of courses offered, and in the content and methods used within particular subject areas.

Education in Alberta is under constant review by the province's Commission on Educational Planning, charged with the broad task of predicting what Alberta society will be like educationally, socially and economically during the last third of the twentieth century. Innovations in recent years include: extensive experimentation in programs carried out at the local-school level; modern buildings, incorporating the latest design in instructional facilities; a growing trend towards the semester system and other methods of dividing the school-year; implementation of school television projects; and establishment of a system of community colleges to supplement the universities and other post-secondary institutions.

British Columbia and the Territories

(a) British Columbia
(b) Yukon Territory
(c) Northwest Territories

Details of education programs in British Columbia are similar to those of the most advanced programs in the other provinces. Its central organization of divisions and services includes curriculum, instruction, adult education, university and college affairs, research and standards, home economics, correspondence courses, school broadcasts, visual education, technical and vocational education, community programs, Jericho Hill school for the deaf and blind, and examinations.

A major development for the 1970s, based on the report of the Commission on the Future of the Faculty of Education, is the revision of the academic program and administrative stucture of the University of British Columbia's Faculty of Education. Among the 85 recommendations are such innovations as: adoption of a single five-year Bachelor of Education program: introduction of the "teaching associate" idea; a new Master of Pedagogy degree; and student participation in decision-making at the operational level.

The Yukon Department of Education uses the British Columbia curriculum and pattern of school organization. Since the territory has not attained provincial status, its education policy is controlled by a series of school ordinances issued by the Commissioner of the Yukon Territory. Such ordinances account for teachers' certificates, classification of schools, election of school trustees, general policy (school year, school hours, holidays, language of instruction -- mainly English, religious instruction, kindergartens, etc.), Department of Education examiners, adult occupational training, apprentice training, vocational rehabilitation of disabled persons, fitness and amateur sport regulations, students' grants, and others. Under the Commissioner, education policy is administered by a Superintendent of Schools, two Assistant Superintendents, and three other professional officials.

The Northwest Territories includes the Districts of Mackenzie, Franklin, and Keewatin, a total of 1,300,000 square miles or one-third of the total area of Canada. Of the 30,000 inhabitants, 10,500 are Eskimo, 5,900 Indians, and 13,600 white or Métis. The aim of the territorial government is to provide educational opportunities for northern residents equivalent to those opportunities

enjoyed by fellow citizens in southern Canada.[2]

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(2) For the addresses of provincial and territorial education departments, see Appendix II.

Part III

Federal Departments and Agencies

While education is primarily a responsibility of the provinces, the Federal Government is directly responsible for the education of Indians throughout Canada and for Eskimo, Indian and other children in the Arctic regions, inmates of federal prisons, and members of the armed forces and their children on military bases at home or overseas. In addition, some federal departments concerned with problems of national defence, manpower, social welfare, and vocational training have become involved directly or indirectly in certain education services or have provided education facilities for specified groups. The following incomplete list includes only those departments most immediately concerned:

Department of Agriculture The Information Division edits and issues departmental publications, releases information to the press and radio, prepares motion pictures for screening and television use, and provides exhibits in this field for display at fairs and exhibitions.

Department of External Affairs The Cultural Affairs Division performs a liaison function in matters concerning education with international implications. Thus the direct official link that the United Nations Educational, Scientific and Cultural Organization (UNESCO) maintains with the Federal Government is through this Division. The same may be said for liaison between Canada and the International Bureau of Education. Similarly, Canada's participation in the Commonwealth Education Liaison Committee and the regular Commonwealth Education Conference is organized by the same Division within the Department. As a function of its responsibility for the conduct of Canada's external relations, the Department of External Affairs has been charged with the negotiation and implementation of cultural agreements with foreign countries, which, among other things, provide for academic and scientific exchanges. The Information Division promotes close relations between the Department and the universities in the area of international affairs.

Canadian International Development Agency This office is responsible for the administration of educational and technical assistance on a bilateral basis to other countries. Its divisions include Planning and Policy Co-ordination, Education, Capital Assistance and Technical Assistance.

Department of Finance The Government Finance Division provides information concerning the availability of loans to students under the Canada Student Loan Plan.

Department of Indian Affairs and Northern Development (a) The Education Division of the Northern Administration Branch is responsible for the education of Eskimos, Indians and others in northern Canada. The division operates schools in the Northwest Territories and Arctic Quebec. Its sections include: curriculum, vocational educational school services, school administration, linguistics (Eskimo), and adult education. (b) The Education Division of the Indian Affairs Branch provides schooling for Indian children living within the provinces, from kindergarten through university. Facilities are provided in

either federal or provincial schools. Its sections include education in federal schools, education in non-federal schools, adult education, vocational training, and guidance.

Department of Justice The Inmate Training Division of the Canadian Penitentiary Service is responsible for education and training of penitentiary inmates.

Department of Manpower and Immigration Arrangements are made with provincial governments, private schools and industry itself for training of adult out-of-school individuals. Candidates are directed to the appropriate place of training through the Department's Canada Manpower Centers spread from coast to coast. The arrangements include language-training for immigrants who are not acquainted with either of the two official languages. In addition, the Department of Manpower and Immigration assists the provinces by providing funds for research and development into adult education.

Department of National Defence The Directorate of Dependents' Education is responsible for the provision of education facilities for the dependents of Canadian Armed Forces personnel at overseas bases.

Department of National Health and Welfare This Department has charge of all matters related to the promotion and preservation of the health, social security and social welfare of the people of Canada over which the Parliament of Canada has jurisdiction. Divisions of the Welfare Branch include Family Allowances and Old Age Security, Social Aid, and Unemployment Assistance. The Civil Defence College at Arnprior is the principal civil defence training center in Canada. The Department also provides research grants to institutions of higher education.

The Public Archives The purpose of the Public Archives is to assemble and make available to the public a comprehensive collection of source material relating to the history of Canada. The main divisions deal with manuscripts, maps, pictures, books and storage of dormant government records. The Manuscript Division contains manuscript collections and public records, each arranged in groups including private papers of governors, intendants, explorers and missionaries, as well as a major part of the correspondence of leading Canadian statesmen. A central microfilm unit is attached to the Administration Division. Researchers have access to the Archives on a 24-hour-a-day basis.

Department of Public Printing and Stationery This is a service agency concerned with the distribution of Government of Canada publications. Its functions include: the compilation and issue of monthly, annual, and separate catalogues and price lists, the sale of publications; the distribution of publications to designated depository libraries and to other institutions and persons entitled to receive them free; the maintenance of a complete mailing service for government departments and agencies; and the publication of the Canada Gazette and Statutes of Canada. A branch also has the exclusive agency in Canada for the sale of publications of international organizations such as the United Nations, UNESCO, the Food and Agriculture Organization, the World Health Organization, the Organization for Economic Co-operation and Development,

the International Atomic Energy Agency, the Commonwealth Economic Committee and the Council of Europe.

Public Service Commission of Canada (a) The Language School uses the latest methods and equipment to provide intensive courses in conversational French for selected public servants. (b) The Operations Branch is responsible for the classification of positions, recruitment to the Public Service, and the administration of competitive examinations qualifying for entrance thereto. (c) The Advisory Services Branch studies the present and proposed organization and establishment of departments and agencies, conducts centralized training, and co-ordinates staff training and developing programs throughout the Service. It studies requests for educational leave and supervises the secretariat of the Suggestions Awards Board of the Public Service.

Department of the Secretary of State The Travel and Exchange Division of the Citizenship Branch encourages programs in Canada concerning exchanges among students and young people in general. The recently-created Education Support Branch is responsible for the co-ordination of federal policies of educational support in terms of post-secondary education financing, student aid, and support of research in the universities. The Branch also performs a liaison function among federal departments and agencies and between the Federal Government and the provincial departments of education, institutions of education and education associations. The Language Administration Branch is concerned about financial and technical co-operation with the provinces for their official-languages bilingualism education programs.

Dominion Bureau of Statistics The Education Division collects, co-ordinates and publishes statistics and information on all levels of education, public and private. (3) Beginning in 1970, its sections will be reorganized to deal with: students, personnel, facilities, cultural, research and finance.

Department of Veterans Affairs The Rehabilitation Division offers academic and vocational courses for public servants, members of the Armed Forces, merchant seamen, tuberculosis hospital patients and inmates of penal institutions. Education assistance is given to children of the war dead.

Canadian Broadcasting Corporation With the co-operation of the provincial departments of education, universities and others, the CBC produces radio and television programs at the public school, university and adult education levels.

Canada Council This agency was created by the Government of Canada in 1957 to foster and promote the study, enjoyment of and production of works in the arts, humanities and social sciences. It carries out its task mainly through a broad program of fellowships and grants of various types. With other organizations, it helps the Department of External Affairs implement Canada's cultural relations with other countries and administers, as a separate agency, the Canadian National Commission for UNESCO.

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(3) For current educational publications of DBS, see Appendix III.

Canadian National Commission for UNESCO This body advises the Government, through the Department of External Affairs, on the UNESCO program, provides liaison between UNESCO and Canadian agencies directly concerned in UNESCO's affairs and publicizes the work of UNESCO.

National Film Board This agency produces education slides, film strips and films.

National Research Council The Awards Office provides predoctorate and postdoctorate scholarships in science and engineering and research grants to staff members of universities.

Part IV

National Education Organizations

Local and provincial education associations with similar interests usually establish a national federation with a permanent staff to co-ordinate activities. The following is a partial list of the better-known organizations:

The Canadian Education Association, dating from 1892, is supported by the ten provincial departments of education, by school-boards, and by individual members. It maintains an office in Toronto, publishes the Canadian Education and Research Digest, conducts an information service and maintains liaison among the provincial departments. It is a semi-official organization.

The Canadian Teachers' Federation was established in 1919 by the provincial teachers societies. Its membership today is over 250,000. The CTF, with headquarters in Ottawa, conducts an information service, undertakes research studies and maintains liaison among the provincial associations.

The Canadian Association of Professors of Education draws its members from among the staffs of university faculties of education. It meets annually as part of the Convention of Learned Societies.

The Canadian School Trustees' Association and its constituent provincial associations hold annual conferences, publish professional magazines, and have fostered research in school finance. The CSTA was founded in 1922.

The Canadian Home and School and Parent-Teacher Federation, founded in 1927, holds annual conventions and provides leadership for provincial affiliates.

The Canadian Association of French-Language Educators (ACELF), organized at Ottawa in 1947, is a group of French-language educators at the national level. Existing in the interests of French culture and Catholic teaching in Canada, it is a representative organization that presents its views to provincial and federal commissions and before international associations on education. The association publishes a bulletin, L'ACELF, about four times a year.

The Association of Universities and Colleges of Canada brings together in voluntary association about 58 Canadian institutions of higher learning to foster the development of higher education. Constituted in 1965 by an Act of Parliament, AUCC is the successor to the National Conference of Canadian Universities and Colleges and its executive agency, The Canadian Universities Foundation. Membership is institutional, with associate membership open to national organizations of university personnel representing major academic or administrative divisions or interests within the universities.

Canadian Association of University Teachers, with its office in Ottawa, is an association of campus organizations of professors.

The Canadian Association for Adult Education conducts an information service, holds radio forums and conferences, and publishes Continuous Learning. Its permanent office is in Toronto. Its counterpart, with headquarters in Montreal, L'Institut canadien d'Education des Adultes, serves the same functions for French-speaking adults.

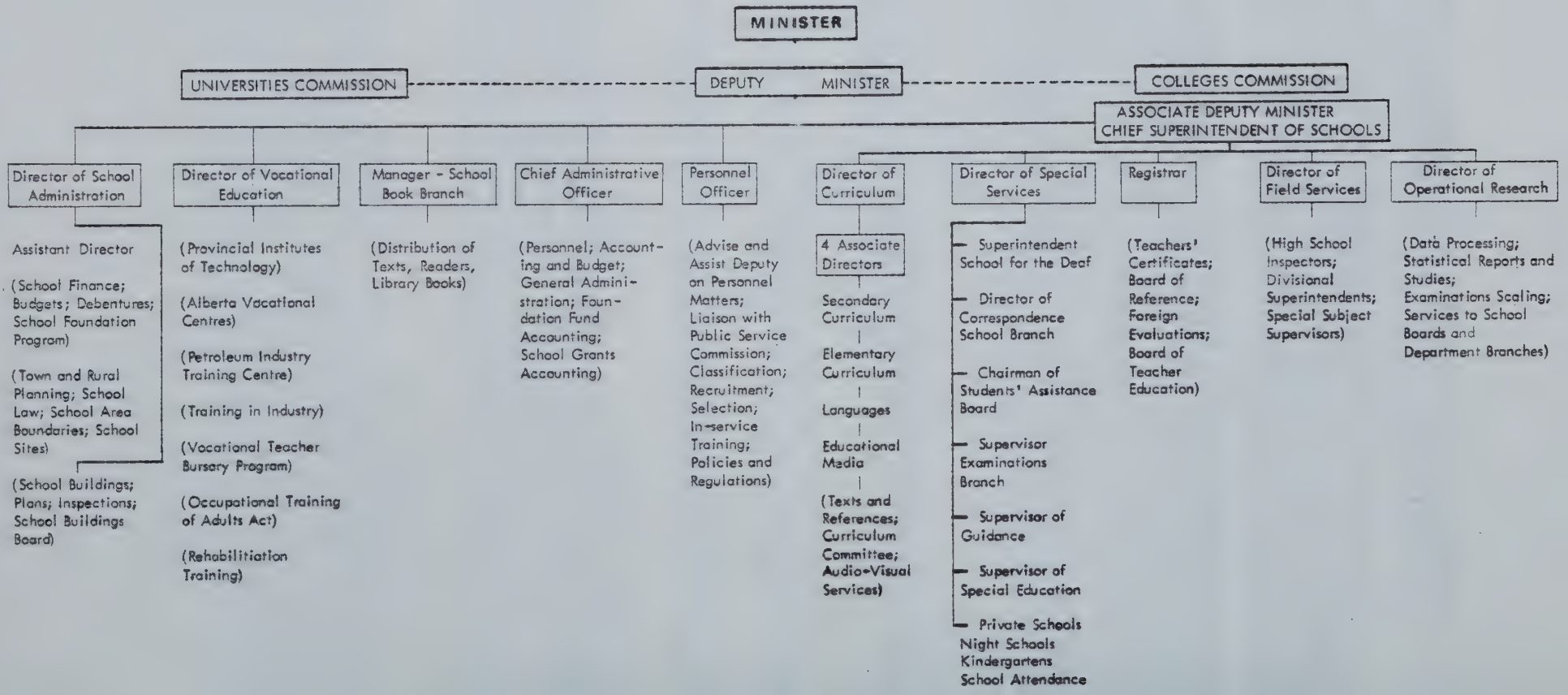
The Canadian Council for Research in Education, with headquarters in Ottawa, has an executive body made up of representatives of most of the foregoing associations that are interested in research. It was established to promote and foster research in education and to maintain liaison throughout the field. In 1967, it sponsored the formation of the Canadian Educational Researchers Association (CERA), a Canada-wide organization to represent the needs and interests of individuals engaged in research and related activities. The CERA initiates, promotes and supports education research and development.

RP/A

Appendix I

GOVERNMENT OF ALBERTA

DEPARTMENT OF EDUCATION


MINISTER
UNIVERSITIES COMMISSION
DEPUTY MINISTER
COLLEGES COMMISSION
ASSOCIATE DEPUTY MINISTER
CHIEF SUPERINTENDENT OF SCHOOLS
Director of School Administration
Director of Vocational Education
Manager - School Book Branch
Chief Administrative Officer
Personnel Officer
Director of Curriculum
Director of Special Services
Registrar
Director of Field Services
Director of Operational Research
Assistant Director
(School Finance; Budgets; Debentures; School Foundation Program)
(Town and Rural Planning; School Law; School Area Boundaries; School Sites)
(School Buildings; Plans; Inspections; School Buildings Board)
(Provincial Institutes of Technology)
(Alberta Vocational Centres)
(Petroleum Industry Training Centre)
(Training in Industry)
(Vocational Teacher Bursary Program)
(Occupational Training of Adults Act)
(Rehabilitation Training)
(Distribution of Texts, Readers, Library Books)
(Personnel; Accounting and Budget; General Administration; Foundation Fund Accounting; School Grants Accounting)
(Advise and Assist Deputy on Personnel Matters; Liaison with Public Service Commission; Classification; Recruitment; Selection; In-service Training; Policies and Regulations)
4 Associate Directors
Secondary Curriculum
Elementary Curriculum
Languages
Educational Media
(Texts and References; Curriculum Committee; Audio-Visual Services)
Superintendent School for the Deaf
Director of Correspondence School Branch
Chairman of Students' Assistance Board
Supervisor Examinations Branch
Supervisor of Guidance
Supervisor of Special Education
Private Schools
Night Schools
Kindergartens
School Attendance
(Teachers' Certificates; Board of Reference; Foreign Evaluations; Board of Teacher Education)
(High School Inspectors; Divisional Superintendents; Special Subject Supervisors)
(Data Processing; Statistical Reports and Studies; Examinations Scaling; Services to School Boards and Department Branches)

Appendix II

Addresses of Provincial and Territorial Departments of Education

Newfoundland	Department of Education, Confederation Building, ST. JOHN'S, Newfoundland.
Prince Edward Island	Department of Education, Province House, CHARLOTTETOWN, P.E.I.
Nova Scotia	Department of Education, Province House, HALIFAX, N.S.
New Brunswick	Department of Education, Legislative Building, FREDERICTON, N.B.
Quebec	Le Ministère de l'éducation, Edifice du parlement, QUEBEC, P.Q.
Ontario	Department of Education, Parliament Buildings, TORONTO, Ontario.
Manitoba	Department of Education, Legislative Building, WINNIPEG, Manitoba.
Saskatchewan	Department of Education, Legislative Building, REGINA, Saskatchewan.
Alberta	Department of Education, Legislative Building, EDMONTON, Alberta.
British Columbia	Department of Education, Parliament Buildings, VICTORIA, B.C.
Yukon Territory	Department of Education, P.O. Box 2703, WHITEHORSE, Y.T.
Northwest Territories	Department of Education, Government of the Northwest Territories, YELLOWKNIFE, N.W.T.

Appendix III

Current Publications of the Education Division, Dominion Bureau of Statistics

(Persons wishing notices of new publications are invited to write to the Education Division.)

Catalogue number		Price
	General	
81-201	Preliminary Statistics of Education. Bilingual	$ .75
81-208	Survey of Education Finance. Bilingual	.75
81-220	Advance Statistics of Education. Bilingual	.50
81-535	The Organization and Administration of Public Schools in Canada (3rd edition - 1966). English edition	2.00
81-515	A Graphic Presentation of Canadian Education. English and French editions	.75
81-533	Canadian Education Through Correspondence. Bilingual	.50
81-523	A Bibliographical Guide to Canadian Education. Bilingual	.75
81-524	Education Planning and the Expanding Economy. English and French editions	1.00
81-530	Student Progress through the Schools by Age and Grade. Bilingual	.75
12-528	A Manual of Accounting for School Boards. English edition	1.00
81-537	Statistics of Special Education for Exceptional Children. Bilingual	1.00
81-526	Census and Other Data for Vocational Counsellors, 1961 Census. English and French editions	1.00
	Elementary and Secondary Education	
81-202	Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools. Bilingual	1.00
81-210	Survey of Elementary and Secondary Education. Bilingual	1.50
81-215	Statistics of Private Elementary and Secondary Schools. Bilingual	.25
81-216	Interprovincial Movement and Immigration of Children to Canada. Bilingual	.25
81-217	Enrolment and Staff in Schools for the Blind and Deaf. Bilingual	.25
81-540	Private Kindergarten and Nursery Schools in Canada. Bilingual	.25
	Higher Education	
81-203	Salaries and Qualifications of Teachers in Universities and Colleges. Bilingual	.75

Catalogue number		Price
81-204	Survey of Higher Education, Part I: Fall Enrolment in Universities and Colleges. Bilingual	.75
81-211	Survey of Higher Education, Part II: Degrees, Staff and Summary. Bilingual	.75
81-212	Canadian Universities, Income and Expenditure. Bilingual	.50
81-219	Tuition and Living Accommodation Costs at Canadian degree-granting Universities and Colleges. Bilingual	.25
81-203	University Teachers' Salaries. Bilingual - 1937-1960	.75
81-536	Awards for Graduate Study and Research. English edition	3.50
81-527	Degrees Held by Canadian University Teachers, 1963-64, Part I: Distribution by Rank, Faculty and Field. Bilingual	.75

Adult Cultural Activities

81-205	Survey of Libraries, Part I: Public Libraries. Bilingual	.75
81-206	Survey of Libraries, Part II: Academic Libraries. Bilingual	.75
81-207	Survey of Adult Education. Bilingual	.75
81-218	University and College Libraries, (Preliminary Release). Bilingual	.25
81-522	Participants in Further Education in Canada. Bilingual	.75
81-529	Museums and Art Galleries. Bilingual	.75
81-532	Survey of Libraries, Part III: Library Education, 1960-1965. Bilingual	.50

Vocational Education

81-209	Survey of Vocational Education and Training. Bilingual	1.00
81-213	Statistics of Private Business Colleges. English edition	.25
81-214	Statistics of Private Trade Schools. Bilingual	.25
81-539	Organized Training in Four Industry Groups. Bilingual	.75

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CANADA

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INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 45
(Revised October 1967)

THE CANADIAN SYSTEM OF EDUCATION

(Prepared by Dr. William H. Lucow, Education Division,
Dominion Bureau of Statistics)

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To discuss one Canadian system of education would be misleading, for there is an independent and distinct system in each of the ten provinces.(1) Also, an active interest in education is maintained by several departments of the Federal Government, some directly involved in the education of Indians, Eskimos, children of armed forces personnel, and other special groups.

One hundred years ago, the British North American colonies which entered into Confederation insisted, as a condition of union, that education be strictly a provincial matter. Section 93 of the British North America Act of 1867 provided that educational legislation should be the exclusive responsibility of each provincial government. In 1867, Section 93 applied to New Brunswick, Nova Scotia, Quebec, and Ontario, and it was applied, in the same or slightly altered form, to the provinces which subsequently entered Confederation: Manitoba (1870), British Columbia (1871), Prince Edward Island (1873), Saskatchewan and Alberta (1905), and Newfoundland (1949).

As a consequence of Section 93, there are ten provincial education systems in Canada today and, though they have much in common, some possess unique features. Newfoundland retains a denominational organization under a single Department of Education. Quebec's Department has two branches -- one essentially French-language and Catholic and the other English-language and Protestant. All the other provinces have single administration systems, but some make provision for tax-supported separate (or dissentient) schools.

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(1) A detailed description is contained in THE ORGANIZATION AND ADMINISTRATION OF PUBLIC SCHOOLS IN CANADA, available from Publications Distribution, Dominion Bureau of Statistics, Ottawa 3, Canada (or from the Queen's Printer, Hull, Canada). Catalogue No. 81-535, $2.00.

Provincial Organization and Administration

Each province designates a cabinet member to serve as minister of education. Under him the deputy minister, who is a public servant and senior professional educationist, administers the department and advises the minister on policy.

Each department of education undertakes: (1) either the training or supervision of the training of teachers; (2) the certification of teachers; (3) the inspection of public schools in order to maintain specified standards; (4) the prescribing of courses of studies and of textbooks; (5) the provision of financial assistance to the schools through grants and services; and (6) the setting out of rules and regulations for the guidance of school trustees and teachers. Each department requires regular statistical and other reports from schools.

Departmental personnel usually include: a chief inspector of schools; elementary-school and secondary-school inspectors or superintendents; and directors or supervisors of curricula, technical-vocational education, teacher training, home economics, guidance, physical education, audio-visual education, correspondence instruction, adult education, and a limited number of other services.

Local Units of Administration

In all provinces, school laws provide for the establishment and operation of schools by local education boards, which operate under the public school act and are held responsible to the provincial government and resident ratepayers for the actual operation of the local schools. Through the delegation of authority, education becomes a provincial-local partnership, with the degree of centralization changing from time to time.

From the earliest times, the provincial departments delegated authority to publicly-elected or appointed boards, which functioned as corporations under the school acts and regulations. These boards of three trustees were expected to establish and maintain a school, select a qualified teacher, prepare a budget for the annual meeting of ratepayers, and present it to the municipal authorities. As towns and cities developed, the original boards remained as units, but provision was made in the acts for urban school-boards with more members and, generally, with responsibility for both elementary and secondary schools, though in some districts separate boards are still to be found. In recent years there has been a trend in rural and adjoining town areas to amalgamate boards into larger units of administration, particularly for secondary schools.

The Provincial Systems

Newfoundland and Labrador

Population: 493,396 (1966)

School enrolment: 146,221

University enrolment (full-time): 3,168

The grade system consists of Grades 1 to 11, with provision for some kindergartens. Graduation from Grade 11 constitutes matriculation to Memorial University, where a first degree may be obtained after completion of a four-year course of studies.

Denominations in order of number of schools controlled include: Anglican, Roman Catholic, United Church and Presbyterian, Salvation Army, Pentecostal Assemblies, and Seventh Day Adventist.

In 1965-66, there were 69 boards each serving 500 pupils or more, and 201 boards each serving fewer than 500 pupils. The Report of the Royal Commission on Education and Youth, published in 1967, pointed out the defects of small school districts serving few pupils and recommended that the entire province be divided into about 35 consolidated districts, amalgamation taking place within and across denominations. Some implementation of this recommendation is now in progress.

In northern Newfoundland and Labrador, about 10 per cent of the population are Indian and Eskimo, the ratio being 3 to 1 in favour of the Eskimos. Schooling is conducted by the same denominations that operate throughout the province; however, most of the Indians are taught at Catholic, and most of the Eskimos at Moravian, missions. Also, some education work is carried on by the International Grenfell Association in co-operation with several school-boards.

Prince Edward Island

Population: 108,535 (1966).

School enrolment: 28,415.

University enrolment (full-time): 924.

Grade system: 1 to 12 with provision for some kindergartens. Graduation from Grade 12 constitutes matriculation to Prince of Wales College or St. Dunstan's University. A first degree may be obtained after completion of a four-year course of studies.

The schools are non-sectarian. Reading of the Bible without comment is permitted, but attendance at such religious exercises is not compulsory.

The school-year consists of 200 teaching days, less days allowed for teachers' meetings. School attendance is compulsory for children from 7 to 15. Examinations for Grade 12 are set and evaluated by the Atlantic Provinces Examining Board.

A candidate for a teacher's licence must be at least 17 years of age and have completed a training course at an approved university or teachers college within the Atlantic Provinces.

Nova Scotia

Population: 756,039 (1966).

School enrolment: 206,203.

University enrolment (full-time): 9,457.

Grade system: Primary year plus 1 to 12. Graduation from academic Grade 11 constitutes junior matriculation, and from 12 is senior matriculation, to the universities. There are seven degree-granting institutions and several professional schools.

For educational purposes, there are 66 municipal units, 24 rural or non-urban districts, 39 towns, and three cities. For inspection purposes, the province is divided into 15 areas, each in the charge of a school inspector.

School attendance is compulsory from 6 to 16. The school-year consists of 195 school days. Examinations in Grades 11 and 12 are conducted by the Atlantic Provinces Examining Board, but local authorities may conduct their own examinations in some subjects.

Prospective teachers follow a two-year programme in the Nova Scotia Teachers College or attend one of the co-operating universities. After training, they are certificated by the provincial Department of Education.

New Brunswick

Population: 616,788 (1966).

School enrolment: 168,154.

University enrolment (full-time): 6,371.

Grade system: 1 to 12. Graduation from academic Grade 12 constitutes matriculation to university, where a first degree may be obtained after completion of a four-year course of studies. There are four degree-granting institutions, one of them using French as the language of instruction.

Legislation passed in June 1966 brought basic changes to the administration of education in New Brunswick. The province assumed full responsibility for the provision of elementary and secondary schooling, paying all costs but delegating the administration to trustee boards of about 34 new and larger school districts.

Attendance is compulsory for 7 to 15. The school-year is fixed at 195 teaching days.

A person enrolling at teachers' college must sign a bond for $600 as a guarantee to teach for two years in the public schools of New Brunswick within five years of receiving a teacher's licence. On attaining experience and additional university credits, a teacher is eligible for one of a hierarchy of six certificates. Music, vocational, and other special certificates are also available.

Quebec

Population: 5,780,845 (1966).

School enrolment: 1,461,528.

University enrolment (full-time): 67,316.

Grade system: kindergarten or nursery, plus Grades 1 to 12. Graduation from 11 constitutes junior, and from 12 senior, matriculation to six degree-granting universities. Many "classical colleges" accept pupils after Grade 7 and grant the Baccalaureat és Arts after eight years of study.

Far-reaching change has characterized the organization and administration of education in Quebec since 1964. Traditions entrenched over three and a half centuries are yielding to pressures for modernization and secularization to such an extent that the process has been called a "renaissance" and a "coming of age".

Two basic practices which have their roots in 350 years of Canadian history remain unchanged: (1) Quebec has two parallel and distinct programmes of education operating under a common act, about five-sixths of the population following the programme of the Catholic section and the other sixth the Protestant; (2) French is the language of instruction in the majority of the Catholic schools.

Cities, towns and villages are usually left as units for educational purposes within their territorial limits. Catholics and Protestants may each select a school-board that operates independently for elementary-school purposes.

The administration unit called the school region is a union of several school districts for the building, maintenance and administration of secondary schools -- "secondary" meaning Grades 7 to 12. In 1964-65, 55 Catholic and nine Protestant school regions were established.

There are three distinct types of school administration: (1) Public schools, which offer elementary, secondary and vocational training to the end of Grade 12, with provision for a post-secondary technical education year; (2) independent subsidized schools, which include the classical colleges, hospital schools, family institutes, and "familial" education from Grade 8 and up; and (3) provincial government schools, which are mainly trade and technical, teacher-training, fine-arts, music and drama institutions.

Ontario

Population: 6,960,870 (1966).

School enrolment: 1,791,000.

University enrolment (full-time): 58,983.

Grade system: kindergarten and Grades 1 to 13. Graduation from Grade 12 constitutes junior matriculation to certain universities, where a first degree may be obtained after a four-year course of studies; Grade 13 constitutes senior matriculation to all universities, and a first degree may be obtained after a three-year course.

In addition to 17 degree-granting universities, there are several teachers' and other professional colleges.

Education is provided free to all persons under 21 years of age. Separate schools for Catholics may be established, subject to the same standards of efficiency as the public schools.

In southern Ontario, the older settled part of the province, each city, town and village is a unit for purposes of school administration. Northern Ontario makes up six-sevenths of the province but is sparsely settled.

School is compulsory for children from 6 to 16. The school-year of 198 days is divided into two terms: September 1 to December 22 and January 3 to June 29. Two 30-minute periods of religious instruction are provided each week, but attendance is subject to the wishes of parents.

Teachers are trained for elementary schools (public and separate) in 13 teachers' colleges throughout Ontario. Secondary-school teachers are trained at Ontario Colleges of Education located at two of the universities. The Ontario Institute for Studies in Education, University of Toronto, provides graduate training in education leading to master's degrees and the Ph.D.

Manitoba

Population: 963,066 (1966).

School enrolment: 239,195.

University enrolment (full-time): 11,069.

Grade system: 1 to 12. There are kindergartens in the larger communities. Graduation from Grade 12 constitutes matriculation to the University of Manitoba or the University of Brandon, where a first degree is obtainable after a three-year course of studies.

School organization includes small districts for elementary grades, large divisions usually for secondary grades only, and a school area whose board administers both elementary and secondary schools. The consolidation of small districts into larger units of administration, stepped up since the Second World War, now covers almost all the province.

Teachers are trained in Winnipeg at the University of Manitoba and in Brandon. Certificates, issued by the provincial Department of Education, are classified according to professional and academic training.

Public schools are free to all up to the age of 21, and compulsory from 7 to 15. The public schools are non-sectarian, and religious exercises are not compulsory.

Saskatchewan

Population: 955,344 (1966).

School enrolment: 245,734.

University enrolment (full-time): 10,707.

Grade system: kindergarten, Grades 1 to 12. Graduation from Grade 12 constitutes matriculation to the University of Saskatchewan (and its affiliates), where a first degree is obtainable after a three-year course of studies.

Main types of school administration include: (1) Local independent boards of three elected trustees; (2) the consolidated school district; (3) the larger school unit, combining 80 to 100 small rural districts; (4) urban centres, including towns and cities with elected boards; and (5) the northern areas, which are under an administrator who works with an education committee of local residents.

The eight elementary and four secondary grades have curricula organized in four divisions: I and II provide a six-year basic programme; intermediate Division III consists of Grades 7, 8, and 9; and high-school Division IV consists of Grades 10, 11 and 12.

Public schooling is provided free up to the age of 21, and is compulsory from 7 to 16 or Grade 8, whichever comes first. Public schools are non-sectarian, and religious instruction is not compulsory. There is provision for the setting-up of separate schools for children of a sufficiently large religious group in one locality.

All teacher-training comes within the jurisdiction of the College of Education of the University of Saskatchewan. A standard "A" certificate may be earned after two years of training beyond Grade 12, or a bachelor of education degree and professional certificate after four years beyond Grade 12.

Alberta

Population: 1,463,203 (1966).

School enrolment: 372,865.

University enrolment (full-time): 14,749.

Grade system: 1 to 12. Graduation from Grade 12 constitutes matriculation to the University of Alberta in Edmonton, University of Calgary in Calgary, or University of Lethbridge in Lethbridge, where a degree is obtainable after a three-year course of studies. Public junior colleges provide instruction for the first two years leading to a degree and function as community, composite schools.

The school district is the basic unit of administration, though, since 1937, its powers have, to a large extent, been assumed by the newer school divisions, which have combined rural districts and have been joined by villages and towns in almost all cases. Now an even larger unit, the county, is gradually superseding the divisional organization.

Public schools are free to all up to the age of 21, and compulsory from 7 to 15. The school year consists of 200 teaching days beginning September 1.

All subjects are taught in English, but a primary course may be given in French. A board may employ competent persons to give additional courses in a language other than English to children whose parents are willing to pay for it.

Teacher-training is carried on at the faculties of education in the three universities. The provincial Department of Education issues two general types of certificate: (1) Standard (two years of training beyond Grade 12); (2) Professional (three years of training beyond Grade 12). The Standard may apply to elementary or secondary grades, depending on the nature of the training-course taken.

British Columbia

Population: 1,873,674 (1966).

School enrolment: 445,904.

University enrolment (full-time): 23,144.

Grade system: kindergarten and Grades 1 to 12. Graduation from academic Grade 12 constitutes junior matriculation to one of the four universities and their affiliates, and a first degree may be obtained after a four-year course of studies. Graduation from Grade 13 is senior matriculation, and a first degree is obtained after a three-year course.

The distribution of school districts in British Columbia is a function of its geography. Most of the province except for the Peace River district constitutes the most rugged and elevated region in Canada. For purposes of administering the schools, the province is divided into 83 organized and four unattached districts classified as municipal or as rural school districts.

Types of school include: Senior secondary (Grades 11 and 12, and sometimes 13); junior-senior secondary (Grades 8 to 12); junior secondary (Grades 8 to 10); elementary-senior secondary (Grades 1 to 12); elementary-junior secondary (Grades 1 to 10); and elementary (Grades 1 to 7).

The sole authority to issue teaching certificates rests with the provincial Department of Education, which issues a series of Elementary and Professional certificates. Teacher-training is done at the faculty of education in each of the universities.

Federal Departments and Agencies

While education is primarily a responsibility of the provinces, the Federal Government is directly responsible for the education of native Indians throughout Canada and for Eskimo, Indian and other children in the Arctic regions, inmates of federal prisons, and members of the armed forces and their children on military bases at home or overseas. In addition, some federal departments close to problems of national defence, manpower, social welfare, and vocational training have become involved directly or indirectly in certain education services or have provided education facilities for specified groups. The following incomplete list includes only those departments most immediately concerned:

Department of Agriculture -- The Information Division edits and issues departmental publications, releases information to the press and radio, prepares motion pictures for screening and television use, and provides exhibits in this field for display at fairs and exhibitions.

Department of External Affairs -- The Cultural Affairs Division performs a liaison function in matters concerning education with international implications. Thus the direct official link UNESCO maintains with the Federal Government is through this Division. The same may be said for liaison between Canada and the International Bureau of Education, of which Canada is not yet a full member. Similarly, Canada's participation in the Commonwealth Education Liaison Committee and the biennial Commonwealth Education Conference is organized by the same Division within the Department. Finally, as a function of its responsibility for the conduct of Canada's external relations, the Department of External Affairs has been charged with the negotiation and implementation of cultural agreements with foreign countries which, among other things, provide for academic and scientific exchanges.

External Aid Office -- This office is responsible for the administration of educational and technical assistance on a bilateral basis to other countries. Its divisions include planning and policy co-ordination, education, capital assistance, and technical assistance.

Department of Finance -- The Government Finance Division provides information concerning the availability of loans to students under the Canada Student Loans Plan.

Department of Indian Affairs and Northern Development -- (a) The Education Division of the Northern Administration Branch is responsible for the education of Eskimos, Indians and others in Northern Canada. The Division operates schools in the Northwest Territories and Arctic Quebec. Its sections include: curriculum, vocational educational school services, school administration, linguistics (Eskimo), and adult education. (b) The Education Division of the Indian Affairs Branch provides schooling for Indian children living within the provinces, from kindergarten through university. Facilities are provided in either federal or provincial schools. Its sections include education in federal schools, education in non-federal schools, adult education, vocational training, and guidance.

Department of Justice -- Inmate Training of the Canadian Penitentiary Service is responsible for education and training of penitentiary inmates.

Department of Manpower and Immigration -- (a) The Research Branch is concerned with research on the supply and demand of technical and professional manpower. (b) The Technical and Vocational Training Branch assists in the development of a manpower-training programme, distributes federal grants to further this development, assists the provinces in the development of a manpower-training programme, distributes federal grants to further this development, assists the provinces in establishing interprovincial standards, and provides technical assistance of a general nature to all provinces. Sections include apprenticeship training, technician training, secondary vocational education, training in industry, supervisory and management training, standards development, teacher training, and occupational analysis.

Department of National Defence -- The Directorate of Dependents' Education is responsible for the provision of education facilities for the dependents of Canadian Armed Forces personnel at overseas bases.

Department of National Health and Welfare -- This Department has charge of all matters relating to the promotion and preservation of the health, social security and social welfare of the people of Canada over which the Parliament of Canada has jurisdiction. Divisions of the Welfare Branch include: Family Allowances and Old Age Security, Social Aid, and Unemployment Assistance. The Civil Defence College at Arnprior is the principal civil-defence training-centre in Canada. The Department also provides research grants to institutions of higher education.

The Public Archives -- The purpose of the Public Archives is to assemble and make available to the public a comprehensive collection of source material relating to the history of Canada. The main divisions deal with manuscripts, maps, pictures, books and the storage of dormant government records. The Manuscript Division contains manuscript collections and public records, each arranged in groups including private papers of governors, intendants, explorers and missionaries, as well as a major part of the correspondence of many leading Canadian statesmen. A central microfilm unit is attached to the Administration Division.

Department of Public Printing and Stationery -- This is a service agency concerned with the distribution of Government of Canada publications. Its functions include: the compilation and issue of monthly, annual, and separate catalogues and price lists; the sale of publications, the distribution of publications to designated depository libraries and to other institutions and persons entitled to receive them free; the maintenance of a complete mailing service for government departments and agencies; and the publication of the Canada Gazette and Statutes of Canada. A branch also has the exclusive agency in Canada for the sale of publications of international organizations such as the United Nations, UNESCO, the Food and Agriculture Organization, the World Health Organization, the Organization for Economic Co-operation and Development, the International Atomic Energy Agency, the Commonwealth Economic Committee and the Council of Europe.

Public Service Commission of Canada -- (a) The Language School uses the latest methods and equipment to provide intensive courses in conversational French for selected public servants. (b) The Operations Branch is responsible for the classification of positions, recruitment to the public service, and the administration of competitive examinations qualifying for entrance thereto. (c) The Advisory Services Branch studies the present and proposed organization and establishment of departments and agencies, conducts centralized training, and co-ordinates staff-training and development programmes throughout the service. It studies requests for educational leave and supervises the secretariat of the Suggestions Award Board of the Public Service.

Department of the Secretary of State -- The Travel and Exchange Division of the Citizenship Branch co-ordinates information in Canada concerning exchanges among students and young people in general. The recently created Education Support Branch is responsible for the co-ordination of federal policies of educational support, particularly post-secondary education financing, student aid, and support of research in the universities. The Branch also performs a liaison function among federal departments and agencies and between the Federal Government and provincial government departments of education, institutions of education and education associations.

Dominion Bureau of Statistics -- The Education Division collects, co-ordinates and publishes statistics and information on all levels of education, public and private. Its sections include elementary and secondary education, vocational, higher education, adult education, research and finance.

Department of Veterans Affairs -- The Rehabilitation Division offers academic and vocational courses for public servants, members of the armed forces, merchant seamen, tuberculosis hospital patients and inmates of penal institutions. Education assistance is given to children of war dead.

Canadian Broadcasting Corporation -- With the co-operation of the provincial departments of education, universities and others, the CBC produces radio and television programmes at the public-school, university and adult-education levels.

Canada Council -- This agency was created by the Government of Canada in 1957 to foster and promote the study and enjoyment of, and the production of works in, the arts, humanities and social sciences. It carries out its task mainly through a broad programme of fellowships and grants of various types. With other organizations, it helps the Department of External Affairs implement Canada's cultural relations with other countries and administers, as a separate agency, the Canadian National Commission for UNESCO.

Canadian National Commission for UNESCO -- This Commission advises the Government, through the Department of External Affairs, on the UNESCO programme, provides liaison between UNESCO and Canadian agencies directly concerned in UNESCO's affairs and publicizes the work of UNESCO.

National Film Board - This agency produces education slides, film strips and films.

National Research Council -- The Awards Office provides pre-doctorate and post-doctorate scholarships in science and engineering and research grants to university staff members.

Financing Canadian Education

Within the last 100 years, education in Canada has ceased to be the privilege of the few and become the right of the many, advancing from log schoolhouses to multi-million dollar establishments. Today, a school enrolment of five million children in a population of 20 million has involved the nation in the expenditure of hundreds of millions of dollars for new and expanded facilities and services; most of this increased expenditure has occurred since the Second World War. The portion of Canada's gross national product allocated to education rose from 1.5 per cent in 1944 to an estimated 6.0 per cent in 1964. In those 20 years not only percentage but the GNP itself redoubled. Thus, over 16 times as much money was spent on Canadian education in 1964 as in 1944. (In 1965, the estimate for expenditure on education was 6.3 per cent of the GNP.)

In keeping with the provincial responsibility for academic elementary and secondary education, as specified in the BNA Act, the cost of this basic education for children of school age is borne by provincial, municipal, and local administrations. The Federal Government contributes to some vocational training in the high schools, much of the post-secondary vocational training, and substantially to higher education costs.

The Federal Government pays the entire cost of educating Indians and Eskimos, members of the armed forces and their children, and some dependent children of the war dead and of veterans.

Since 1964-65, a special programme of federal loans to university students provides up to $1,000 a year to individual students, free of interest until after graduation.

Various federal departments and councils, such as the Department of Health and Welfare, the Department of Agriculture, the Canada Council, the National Research Council and the Defence Research Board, provide grants for research (and often for travel too), to university professors and graduate students.

Substantial grants toward the building of new vocational-training facilities and in aid of the actual conduct of courses were made from 1961 to 1967 by the federal Department of Labour under a vocational and technical training agreement with the provinces. Programmes included: technical and vocational high-school training; technician training; trade and other occupational training; training in co-operation with industry; training of the unemployed; training of disabled; training of technical and vocational teachers; training for federal departments and agencies; student aid; manpower requirements and manpower-training research. The federal share of the costs of these programmes for the duration of the agreement (1961-1967) has been estimated at upwards of $800 million. When all the projects that have been approved are implemented, there is an additional commitment on the part of the Federal Government of about $765 million to be paid out after March 31, 1967. When this happens, a total of 425,000 new student places will have been provided.

Provincial financing is done by means of a variety of grant schemes. In the early days, most provinces used flat and incentive grants based on such considerations as number of teachers, number of pupils, days in session, and average daily attendance. Special grants were introduced as incentives for purchasing special equipment or for serving hot lunches at school. Next, attempts were made to introduce an equalization formula designed to help poor districts.

In general, provincial grants to school-boards are applied to construction costs and to operating expenses. Relative amounts vary from province to province, but the average provincial contribution across Canada is about 48 per cent of these costs and expenses.

The provincial governments usually pay all the costs of teachers' colleges, trade and technical schools, and schools for the deaf, the blind, and those requiring special education.

Private schools are normally supported by student fees, endowment income, contributions, and a variety of gifts from sponsoring bodies.

An example of the national total annual expenditure on education: In 1966, the cost of all formal academic and vocational education in Canada exceeded $3.75 billion, which was 6.5 per cent of the gross national product or 8.8 per cent of the total personal income.

School Buildings

Plans and designs for new schools change as enrolments rise and as new methods and courses are introduced. Considerations of functional architectural cohesiveness, beauty and costs are weighed against the provision of such facilities as team-teaching, audio-visual and programmed instruction, and air-conditioning.

There has been a movement towards the erection of new and larger schools and the elimination of one-room rural schools. The trend is to buildings of one and two storeys, with folding or otherwise movable partitions, ramps instead of stairs, and rooms planned for special techniques and courses such as television and motion-picture screening, music appreciation, the industrial arts, and commercial studies.

The "Canadian Education Showplace" has continued as an annual display of school supplies and equipment since its debut in Toronto in 1965. It includes an exhibiton of school architecture.

National Education Organizations

Local and provincial education associations with similar interests usually establish a national federation with a permanent staff to co-ordinate activities. The following is a partial list of the better-known organizations:

The Canadian Education Association dates back to 1892. The CEA is supported by the ten departments of education, by school-boards, and by individual members. It maintains an office in Toronto, publishes Canadian Education and Research Digest, conducts an information service, and maintains liaison among the provincial departments. It is a semi-official organization.

The Canadian Teachers' Federation was established in 1919 by the provincial teachers' societies. Combined memberships today total about 200,000. The CTF, with headquarters in Ottawa, conducts an information service, undertakes research studies, and maintains liaison among the provincial associations.

The Canadian Association of Professors of Education draws its members from among the staffs of university faculties of education. It meets annually as part of the convention of learned societies.

The Canadian School Trustees Association and its constituent provincial associations hold annual conferences, publish professional magazines, and have fostered research in school finance. The CSTA was founded in 1922.

The Canadian Home and School and Parent-Teacher Federation, founded in 1927, holds annual conventions and provides leadership for provincial affiliates.

The Canadian Association of French-Language Educators (ACELF), organized at Ottawa in 1947, is a group of French-language educators at the national level. Existing in the interests of French culture and Catholic teaching in Canada, it is a representative organization that presents its views to provincial and federal commissions and before international associations on education. The Association publishes a bulletin, L'ACELF, about four times a year.

The Association of Universities and Colleges of Canada brings together in voluntary association 58 Canadian institutions of higher education to foster the development of higher education. Constituted in 1965 by an Act of Parliament, AUCC is the successor to the National Conference of Canadian Universities and Colleges and its executive agency, the Canadian Universities Foundation. Membership is institutional, with associate membership open to national organizations

of university personnel representing major academic or administrative divisions or interests within the universities.

Canadian Association of University Teachers, with its office in Ottawa, is an association of campus organizations of professors.

The Canadian Association for Adult Education conducts an information service, holds radio forums and conferences, and publishes Continuous Learning Its permanent office is in Toronto. Its counterpart, with headquarters in Montreal, l'Institut canadien d'éducation des adultes, serves the same functions for French-speaking adults.

The Canadian Council for Research in Education, with headquarters in Ottawa, has an executive body made up of representatives of most of the foregoing associations that are interested in research. It was established to promote and foster research in education and to maintain liaison throughout the field.

Looking Ahead

The role of education in Canada has changed since 1867. Today, its chief purpose is to contribute to the good of a changing society and, at the same time, to develop the individual child to the maximum of his capacity. A greater variety of educational offerings is aimed at producing graduates who can meet the new challenges in trade, industry, and government. Education today is provided for all school-age children and, indeed, attendance is compulsory throughout Canada.

The stigma of inferiority of vocational education compared to academic is rapidly disappearing with the establishment and spread of post-secondary institutes of technology and vocational schools of all kinds. At the same time, university enrolments seem destined to reach a higher level every year for many years to come.

There has been more expansion in the number and size of educational institutions in Canada in the past ten years than in any previous ten years, and their offerings have been more numerous and varied than ever. There is every reason to expect continued expansion of education facilities in the years which lie ahead.

RP/A

APPENDIX I

ADMINISTRATION OF EDUCATION IN CANADA 1967

THE PEOPLE

THE FEDERAL GOVERNMENT
Federal departments and agencies involved to some extent in education

CANADIAN BROADCASTING CORPORATION School radio and television

NATIONAL RESEARCH COUNCIL Scholarships and grants

CANADA COUNCIL Encouragement of arts, humanities, and social sciences

CANADIAN NATIONAL COMMISSION FOR UNESCO Liaison and publicity

VETERANS AFFAIRS Academic, vocational, and correspondence courses

INDIAN AFFAIRS AND NORTHERN DEVELOPMENT Education of Indians and Eskimos

BUREAU OF STATISTICS Education statistics

EXTERNAL AID OFFICE Educational and technical aid to other countries

JUSTICE Penitentiary inmate training

PUBLIC SERVICE COMMISSION Staff training

NATIONAL FILM BOARD

AGRICULTURE Exhibits and information

MANPOWER AND IMMIGRATION

PUBLIC ARCHIVES

PUBLIC PRINTING AND STATIONERY

TEN PROVINCIAL GOVERNMENTS
Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia

A Typical Provincial Department of Education:

MINISTER --- Advisory Council
DEPUTY MINISTER
ASSOCIATE DEPUTY MINISTERS
ASSISTANT DEPUTY MINISTERS
DIRECTORS OF:
- Curricula
- Teacher Training
- Guidance
- Visual Education
- School Broadcasts
- Research
- Correspondence Courses
- Home Economics
- Physical Education
- Adult Education
- Vocational Education
- School Administration
- Tests and Standards
- Community Programmes
- Special Services
- School Construction
- Provincial Library
- Elementary Education
- Secondary Education
- Summer School

LIBRARIAN
REGISTRAR
ACCOUNTANT
SCHOOL INSPECTORS ----------

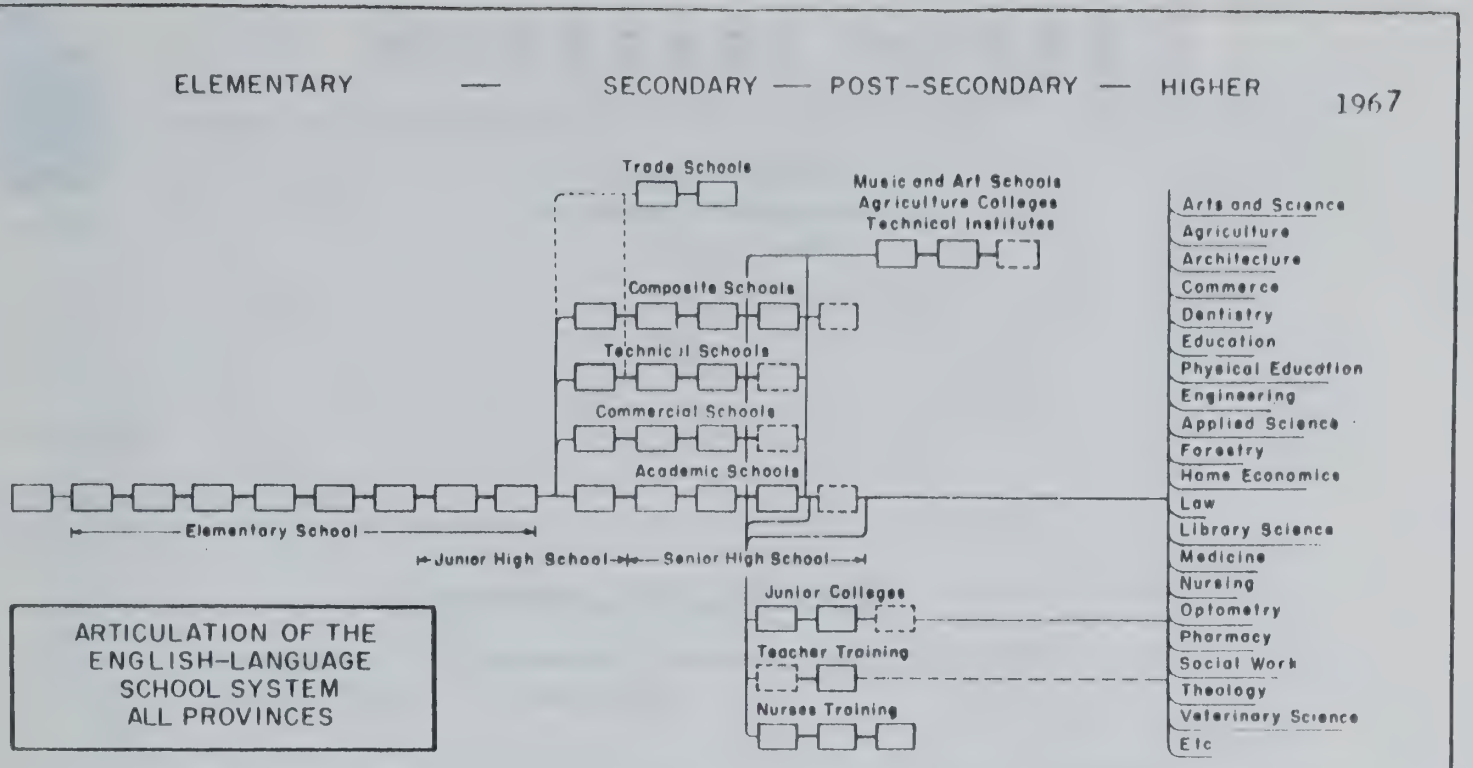
MUNICIPAL GOVERNMENTS
City, town, and county councils

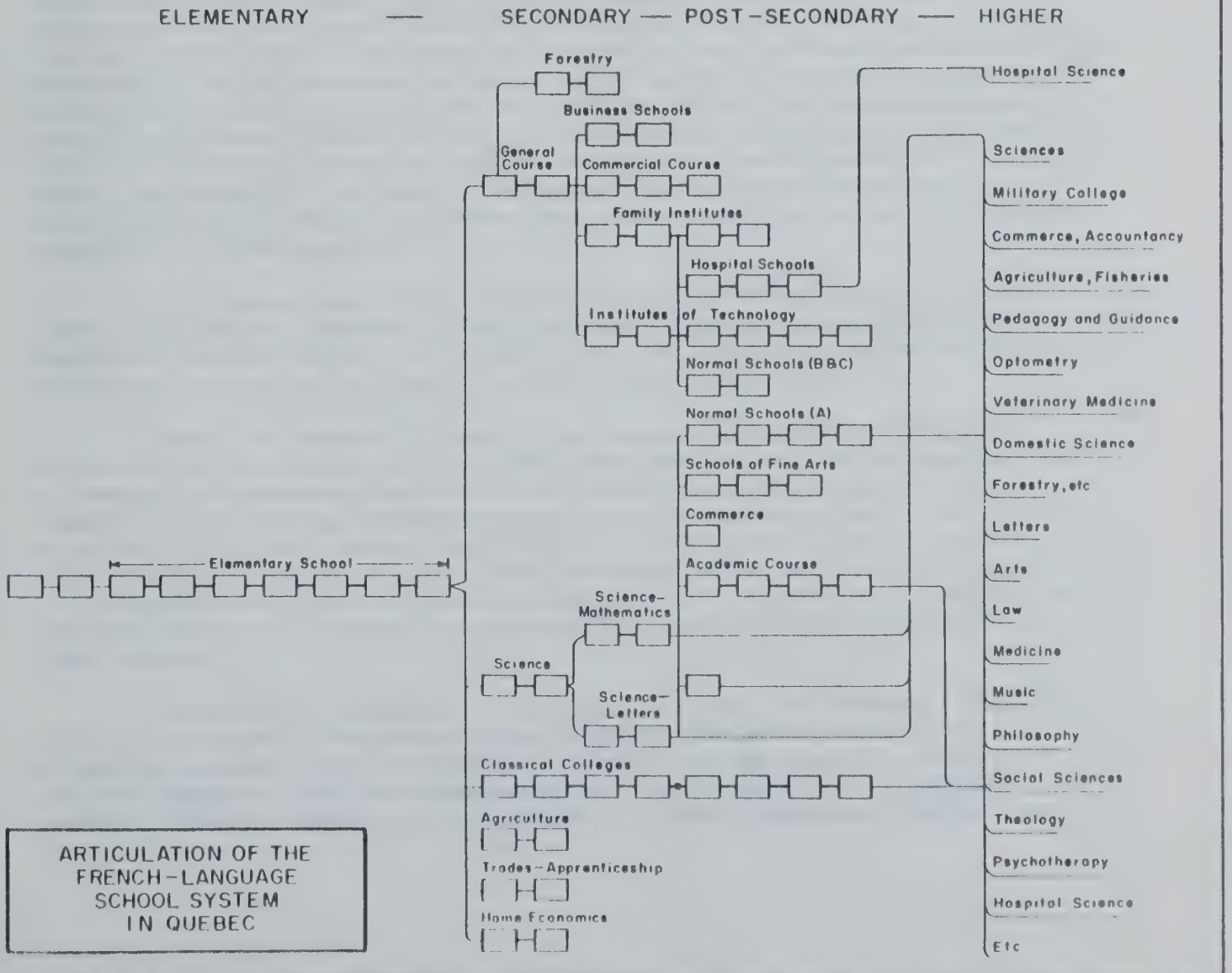
City School Boards
Town Boards
Village Boards
Unit Boards
Area Boards
Divisions

APPENDIX II

ADDRESSES OF PROVINCIAL DEPARTMENTS OF EDUCATION

BRITISH COLUMBIA	Department of Education, Parliament Buildings, VICTORIA, British Columbia.
ALBERTA	Department of Education, Legislative Buildings, EDMONTON, Alberta.
SASKATCHEWAN	Department of Education, Legislative Buildings, REGINA, Saskatchewan.
MANITOBA	Department of Education, Legislative Buildings, WINNIPEG, Manitoba.
ONTARIO	Department of Education, Parliament Buildings, TORONTO 2, Ontario.
QUEBEC	Le Ministère de 1'Education, Edifice du Parlement, QUEBEC, Québec.
NEW BRUNSWICK	Department of Education, Legislative Buildings, FREDERICTON, New Brunswick.
NOVA SCOTIA	Department of Education, Province House, HALIFAX, Nova Scotia.
PRINCE EDWARD ISLAND	Department of Education, Province House, CHARLOTTETOWN, Prince Edward Island.
NEWFOUNDLAND	Department of Education, Confederation Building, ST. JOHN'S, Newfoundland.


ELEMENTARY — SECONDARY — POST-SECONDARY — HIGHER
1967
Trade Schools
Music and Art Schools
Agriculture Colleges
Technical Institutes
Composite Schools
Technical Schools
Commercial Schools
Academic Schools
Elementary School
Junior High School
Senior High School
Junior Colleges
Teacher Training
Nurses Training
Arts and Science
Agriculture
Architecture
Commerce
Dentistry
Education
Physical Education
Engineering
Applied Science
Forestry
Home Economics
Law
Library Science
Medicine
Nursing
Optometry
Pharmacy
Social Work
Theology
Veterinary Science
Etc
ARTICULATION OF THE ENGLISH-LANGUAGE SCHOOL SYSTEM ALL PROVINCES


ELEMENTARY — SECONDARY — POST-SECONDARY — HIGHER
Forestry
Business Schools
General Course
Commercial Course
Family Institutes
Hospital Schools
Institutes of Technology
Normal Schools (B&C)
Normal Schools (A)
Schools of Fine Arts
Commerce
Academic Course
Science-Mathematics
Science
Science-Letters
Classical Colleges
Agriculture
Trades-Apprenticeship
Home Economics
Elementary School
Hospital Science
Sciences
Military College
Commerce, Accountancy
Agriculture, Fisheries
Pedagogy and Guidance
Optometry
Veterinary Medicine
Domestic Science
Forestry, etc
Letters
Arts
Law
Medicine
Music
Philosophy
Social Sciences
Theology
Psychotherapy
Hospital Science
Etc
ARTICULATION OF THE FRENCH-LANGUAGE SCHOOL SYSTEM IN QUEBEC

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CANADA

REFERENCE PAPERS

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA – CANADA

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(Revised March 1965)

THE CANADIAN SYSTEM OF EDUCATION

(Prepared by F.E. Whitworth, Director, Education Division
Dominion Bureau of Statistics)

This report has been prepared for the general reader outside Canada who wishes to know something about Canadian education -- how it is organized, administered and financed, the types of school it makes available, and who attends them. The reader is assumed to know the basic geography of the country, which occupies the northern half of North America (except for Alaska) and supports a population of more than 19 million, clustered mainly along the 3,500-mile border with the United States but pushing its outposts north in increasing number as more of the oil and mineral wealth of the Arctic and sub-Arctic regions is disclosed. It is also assumed that the reader knows that Canada is a federation of ten provinces and an independent member of the Commonwealth.

In Canada, executive authority is vested in the Queen and her representatives the Governor General and the lieutenant-governors of the provinces. By the British North America Act of 1867, legislative responsibility was vested in the federal and provincial legislatures.

When the provincial leaders sat round the conference tables in Charlottetown and Quebec just over 100 years ago to consider the desirability of forming a federation, they maintained firmly that the education of all Canadians except Indians, Eskimos and other persons in the territories, as well as a few special populations, should remain the business of the provincial legislatures. It is true that in 1867 education consisted, for the most part, of instruction in schools run by the community, with some help and direction from the province. In other words, education was still mainly a matter of local concern.

Since 1867, the role of education in Canada has changed. Today, its chief purpose is considered to be that of contributing to the good of a changing society and to its economic advance, at the same time ensuring the development of the individual member of that society to his maximum capacity. Greater change can be expected as Canada progresses further into

the age of cybernation and becomes still more deeply involved in international affairs. Greater variety of educational opportunity must be provided, in order to produce graduates who can meet the new challenges in trade, industry and government.

In Canada's pioneer days, elementary schooling consisted of reading, writing and "number work"; these three were considered sufficient for the needs of most pupils. The contents of the classroom readers were largely religious and highly moral. As a result, controversy broke out now and then between those who wished religion to be taught in the schools and to permeate the secular subjects and those who wished to keep sacred and profane studies separate.

Today, certain provinces permit Catholic or Protestant minorities to establish separate schools. Others observe a gentleman's agreement permitting secularly-oriented schools to be operated by Catholic or Protestant minorities as part of the public-school system. And all provinces permit the establishment of private schools by religious bodies, individuals and groups, provided they are satisfied that the education so offered is comparable to that of the public schools.

In the early days, secondary schools, whether Latin Grammar Schools or academies, were established to prepare students for professional training at university, for teacher training and for other academic pursuits. Social distinctions were evident in the Latin Grammar Schools. The academies, usually established by subscribers living in the same community, were generally more practical in nature. By the middle of the nineteenth century, the secondary schools were administered by provincial departments and were often superimposed on elementary schools. Secondary schools were for all pupils who could qualify, and it came to be accepted that everyone was entitled to elementary and secondary education who could benefit from it. The next step was to achieve equality of educational opportunity so far as providing money to operate the schools was concerned.

At present more attention is directed towards developing creativity and originality, and education is aimed at developing the individual to his maximum potential. However, it is difficult to remove emphasis from the accumulation of factual information, and to overcome a trend toward regimentation with "packaged courses", or to aim at quality control which will produce a reasonably uniform product of acceptable quality.

Responsibility for Education

Each of the ten provinces has the authority and responsibility for organizing its education system and education policies. Consequently, organization and practice differ somewhat from province to province -- first, because of their historic beginnings; second, owing to influences from other countries; third, because of developments following recommendations of royal commissions; and fourth, following official decisions implemented by the legislature or department of education of each province. Differences among the provinces are gradually lessened or increased as one province or another changes its organization and moves ahead. Quebec is now in the process of reorganizing its department and school systems, which, outwardly, will more

nearly resemble those of the other provinces; but further new and important differences are appearing in this province just as in such others as Ontario, British Columbia and Saskatchewan.

Each province has a department of education under a minister of education, who is a member of the cabinet. The department is administered by a deputy minister, who is usually a civil servant and a professional educator. He advises the minister on policy, supervises the department and gives a measure of permanency to its educational policy. In general he carries out that policy, and is responsible for the enforcement of the school act. The department of education usually includes the following additional members: the chief inspector of schools and high-school and elementary-school inspectors or superintendents; directors or supervisors of curricula, technical education, teacher training, home economics, guidance, physical education, audio-visual education, correspondence instruction, and adult education; directors or supervisors of a limited number of other sections (according to the needs of the provinces); and technical personnel and clerks. Only in Newfoundland, which has a public-denominational system, are there superintendents for the five denominations accepted by the School Act; and in Quebec there are two deputies, one in charge of the French-language system, the other in charge of the English-language system.

The trend is toward greater diversification of effort, with increased specialization by departmental personnel and closer co-ordination of the services provided. Current efforts to reorganize the administrative units in Ontario and Quebec, and to some extent elsewhere, furnish examples of this kind of change in progress. Work of a committee on data-processing under the ministers of education should affect record-keeping and provide better service in all departments. The greater use of audio-visual aids, programmed instruction, educational and closed-circuit television makes greater demands on the departments, schools and other organizations. The new emphasis on structure in subject matter, on newer methods (such as the Cuisenaire, the Initial Teaching Alphabet) and on more varied organization for instruction (such as team teaching, which may involve large-group, small-group and individual instruction) cannot but affect the work of the departments. Other areas include that of special education for atypical children, increases in transportation, and expansion of technical and vocational education at all levels -- all of which affect the responsibilities of departmental officials, school-boards and teaching personnel.

For many years the schools were established and operated according to school law. Provincial inspectors tried to ensure competent instruction and uniform standards throughout the province. As city schools have become more integrated and larger units have been organized in the rural and semi-urban areas, superintendents and principals have undertaken to provide leadership and direction to the schools of their districts. City school superintendents have been employed by local school boards. This movement towards decentralization is also to be seen over the years in a reduction of the number of departmental or external examinations, which are now generally limited to the final, or last two years, of high school. Again, some provinces permit the schools to select textbooks or reference books from a fairly extensive list and to try out experimental classes. Courses of study are seldom planned by one or two experts from the department, but are the result of conferences and workshops of teaching personnel and others actively interested in the subject matter.

From the beginning, each department of education has undertaken, among other things: (1) to provide for the training and certification of teachers; (2) to provide courses of study and prescribe school texts; (3) to provide inspection services to help maintain specified standards; (4) to assist in financing the schools through grants and services; (5) to make rules and regulations for the guidance of trustees and teachers. In return, each department requires regular reports from the schools.

Other provincial departments having some responsibility for operating school programmes are: the departments of labour, which operate apprenticeship programmes; agriculture departments, which operate agriculture schools; departments of the attorney-general or of welfare, which operate reform schools; departments of lands and forests, which operate forest-ranger schools; and departments of mines, which conduct prospectors' courses.

Local Units of Administration

In all provinces, school laws provide for the establishment and operation of schools by local education boards, which operate under the public-school act and are held responsible to the provincial government and resident ratepayers for the actual operation of the local schools. Through the delegation of authority, education becomes a provincial-local partnership, with the degree of decentralization changing from time to time. Questions concerning the extent to which curricula development, local supervision and the percentage of the education burden that should be local rather than provincial will probably occupy the minds of Canadians for decades to come, as well as problems such as the optimum size of units, schools and classes, qualifications of teachers, and so on.

From the beginning, the provincial departments delegated authority to publicly-elected or appointed boards, which functioned as corporations under the school acts and regulations. These three-man boards were expected to establish and maintain a school, select a qualified teacher, prepare a budget for the annual meeting and present it to the municipal authorities. As towns and cities developed, the original boards remained as units, but provision was made in the acts for urban school-boards with more members and, generally, with responsibility for both the elementary and secondary schools, though in some districts separate boards are still to be found.

In the rural areas, a number of pressures were brought to bear on the organization of districts, some four miles square, which were established when local transportation was by ox-team or horse and the school had to be within walking distance of the home. The realization grew that the manner of living had changed, that farms were much larger and mechanized, that most farmers had trucks and automobiles, that there were fewer children to the square mile, and that it would be more efficient and economical to provide central schools and transportation. In addition, there was considerable discontent among the teachers, as security of tenure was rarely found under the three-man local school-boards. Add a shortage of teachers, differences among the districts in their ability to pay for education and a demand for high-school facilities in rural areas, generally of the composite type, and some of the reasons become clear why larger administrative units were introduced.

It was hoped that a greater degree of equalization could be achieved, that better facilities could be provided at a lower rate and that the short supply of teachers could be met somewhat more effectively. The units were introduced by acts of the legislatures in Alberta and British Columbia and by acts with provision for local option in Saskatchewan and the Maritime Provinces. Manitoba, following recommendations, introduced legislation making it beneficial to areas that organized larger secondary units. Ontario has organized some country units in the southern part and there is discussion of additional amalgamation. Quebec is in the process of reorganizing Quebec schools under "Operation 55", which should result in the formation of some 55 larger units, which will encompass all of Quebec's Roman Catholic schools, including vocational schools. The Protestant schools are already organized for administrative purposes.

In some of the Western provinces the local boards were replaced by unit boards; in others the local boards were retained with limited duties and unit boards were set up. The local boards generally functioned in an advisory capacity.

This represents one step toward equalization of opportunity financially. Alberta has gone one step further in some regions, by making the school areas coterminous with municipal units. Where such county units are established, a committee from the municipal council administers the schools with the authority and power usually exercised by the unit board. Where unit boards are established, they are responsible for providing the necessary buildings, equipment and staff, and financing the schools.

Early Childhood Education

Day nurseries are established primarily to provide day-care for the pre-school children one and a half to five years of age of working parents. About two-thirds of the day nurseries are conducted by public or private welfare agencies.

Nursery schools are usually for children from three to five years old, who attend for half the day. Most of these are private institutions, which may be operated as co-operative enterprises or for profit. It is estimated that there are more than 200 nursery schools in Canada, and the number is likely to increase. In some provinces their establishment must be approved by the departments of education and health.

Kindergartens are now found at the base of the elementary school in most large urban centres, but there are separate private institutions as well. Most kindergartens accept only five-year-olds, but a few, where facilities permit, also accept four-year-olds.

Programmes are designed to help the child mature through developing skills and good habits. They provide an opportunity for him to live with others and express himself. In addition to schedules for lunch, toilet and rest periods, indoor activities include music, stories and handiwork; outdoor activities are built round free play with large equipment. Toward the end of his stay in the kindergarten, the child is introduced to simple ideas of language and numbers to prepare him for the formal studies to follow.

The Canadian Broadcasting Corporation provides a 15-minute radio programme, "Kindergarten of the Air", for pre-school children five days a week from autumn to spring.

Elementary and Secondary Education

Enrolment in the elementary and secondary schools has been increasing year by year, until in 1963-64 there were 4,584,226 pupils enrolled in the public schools, 212,872 in the private schools and about 20,000 in the business colleges.

Each September, the six-year-olds enter the first year of elementary school, where they study for six, seven or eight years, before entering junior high school or the traditional high school. A small number leave the academic stream for technical secondary schools or trade schools and many enter composite schools, where they have a choice of courses. After completing 12 or 13 grades or years successfully, students who took the academic or college preparatory course continue on to college or to university. Others may enter post-secondary technical institutes or professional training in nursing schools, teachers' colleges outside the universities, business schools and the like. Of those who enter university, about 10 per cent who began Grade I, may take arts, science, commerce, education, and complete their courses in three years if they enter with senior matriculation or four if they take honours. Those taking the professional courses will generally require longer to obtain their first degree and may be expected to have taken preparatory science or arts courses before enrolling. Some graduates will study for at least one extra year to obtain a master's degree or three extra years for a doctorate. Recently, post-doctorate courses have been offered. Canadian universities graduated 25,221 with first degrees, 3,152 with masters' degrees in 1963, and 481 with doctorates in 1964.

The 8-4 plan leading from Grade I to university was for many years the basic plan for organizing the curriculum and schools, other than the Quebec Catholic schools. It is still followed in many rural, village and town schools, and in some cities. However, this plan has been modified over the years in most provinces, cities, or groups of schools, since it seemed to be inadequate to meet the demands arising from new educational aims. There are a number of variants at present to be found in Canada. For example, there is the addition of one, or even two, kindergarten years at the beginning of the system. An extra year has been added to high school, providing five rather than four years of secondary schooling. Junior high schools have been introduced and the resulting organization changed to 6-3-3, 6-3-4, 7-3-3 or 7-4-2 plans. As an alternative, the first six years of elementary school have been combined into two units of three years, each designed to reach certain specified goals during a three-year period. A few junior colleges affiliated with universities have been organized offering the last one or two years of high school and the first one or two years of college; Quebec has introduced a two-year institute between high school and university.

Introduction of one or other of these plans depends to some extent on a sufficient number of pupils, either living in prescribed areas such as cities or brought together by the reorganization of rural areas into larger units, with regional schools provided for high-school pupils. These larger units may be formed exclusively from rural areas, or from rural, village and

town schools, and they may be organized for both elementary and secondary schools or for secondary schools only. Such development, now fairly common in most provinces, provides for the transportation of rural pupils to central schools. Many of these units have organized composite high schools offering both practical and academic courses and differing from the more typical high schools, which are mainly occupied in preparing students for college. Even some of these, indeed, provide a minimum number of vocational and general courses.

The composite and regional high schools provide courses in home economics, agriculture, shop-work and commercial subjects, as well as the regular secondary-school subjects. The number of subjects offered has also increased greatly, and the options available, particularly in Alberta and British Columbia, provide a broad programme intended for pupils with a wide range of abilities and desires. There is a trend toward providing a comprehensive programme with college preparatory classes, broad preparatory courses for those entering the skilled trades, and general courses for those who will leave high school to become tradesmen, office workers, and so on. Attention is thus given to the minority who will go on to institutions of higher learning, while the majority, who will look for jobs after high-school completion, are fitted by their training for the responsibilities they will assume. All pupils are encouraged to "develop qualities of good citizenship" and a desire to continue learning after leaving school. Considerable emphasis has been placed on music, art, physical education, guidance and "group activities", but not at the expense of the basic subjects that provide a general foundation.

Most schools have programmes of extra-curricular activities that cover a wide field and range from bands, orchestras and glee clubs to recreational and hobby clubs. Students in the larger schools usually elect a students' council, which assists in planning and administering sports and recreation programmes and publishing school papers and yearbooks.

Newfoundland has a public-denominational school system. Each leading denomination has a secretary in the Department of Education who operates under the Deputy Minister and administers the schools of his denomination. All schools operate under the same school law and use the same curriculum, and all teachers are instructed in the same training institutions.

Quebec is also unique, with two public systems -- one basically for Catholic French-speaking students, the other for Protestant English-speaking students -- and some provision for all other students. Each system has responsibility for organizing its own schools and designing its curriculum.

Special Schools and Special Education

There is increased interest in exceptional children, including the gifted, as well as in the disabled or the emotionally, mentally, physically or socially handicapped. In the 1953-54 school year, facilities were provided for 42,430 exceptional children, under the charge of 1,900 teachers, in 108 special schools and 588 special classes provided from public sources, and in

130 private schools. The largest group was found among the mentally retarded, followed by those requiring speech correction, the orphaned and neglected, institutional cases, delinquents, hospital cases, and a variety of other categories.

New types of special class are sometimes started by parents of children with a common disability, who band together to provide help and show the need for such service, which is then taken over by public bodies. Similar classes are initiated by the department of education or municipal authorities. Progress in providing such education varies from province to province. It generally begins in the city-school system; there is usually little provision for assistance for the rural child who needs special attention, except for those who are taken to institutions.

There are six schools for the blind, nine schools for the deaf and a number of training schools for mental defectives. Special classes are found in tuberculosis sanatoria, mental hospitals and reformatories. In many cities, there are classes for the hard-of-hearing, the partly blind and other physically and mentally handicapped children.

Special classes in the regular schools are found in some cities for pupils with defective hearing or sight, or with physical handicaps, and for the mentally-retarded or psychopathic, whenever it appears that they will not benefit from the regular classes.

The Federal Government and Education

According to the British North America Act, the Federal Government is responsible for the education of: nearly 180,000 Indians, of whom about 46,600 are students and a third of whom attend provincial or private schools; about 12,000 Eskimos of whom 2,400 some young people are in boarding schools; other children in the Yukon and Northwest Territories; inmates of penitentiaries; and members of the armed forces and their children at military stations within or outside Canada.

Years ago the Federal Government, in order to ensure a supply of qualified workers, provided grants for agriculture and vocational education.

Today, the importance of manpower training and development cannot be overemphasized, for youth and for some adults, especially married women, who will join the labour force for the first time, and for many workers already in the work force who have been technologically replaced or who should be upgraded. The Federal Technical and Vocational Training Assistance Act of 1960 increased federal grants to vocational-technical education distributed among nine programmes, covering: (1) technical and vocational programmes in high schools; (2) technical institutes, and trade schools; (3) programmes for the unemployed and disabled; (4) programmes for technical and vocational teachers; (5) training programmes in co-operation with industry; (6) student aid to nurses in training; and (7) college students. Before March 31, 1963, grants covered 75 per cent of Canada's capital expenditure programmes.

Manpower and Education

Goals of education are dictated by conditions prevailing in the society the education system serves and by the demands laid on the system by society. Canadian education goals are changing today, to become more exacting year by year. No longer, as in pioneer days, do we consider an elementary-school education adequate for the majority, a high-school education necessary for a minority of the population, and college education necessary for the few. No longer is a second language a frill, science second to arts and reserved for a minority, and good health and a willingness to work adequate recommendation for employment.

The radical change in manpower needs in Canada at present has resulted from a number of movements, such as the increase of mechanization in farming, fishing, logging and mining, where investment holdings and technical organization have been increased. This has speeded up urbanization and secondary production. Likewise, automation and technological advance are changing the demands for manpower and the changes and increases have been so rapid that the schools, colleges and universities have not been able to keep pace with the demand. Today, we have both a fairly high rate of unemployment and a fair number of unfilled jobs.

The impact of changing social and economic conditions is having a tremendous impact on education. In addition to clamour for change, and a willingness to try new methods, there are rising expectations manifest throughout the systems. The most easily seen demand on higher education is for expansion in the number of places, but the other needs are at least of as much importance. Progress, however, is limited by inertia and by vested interests in the maintenance of the status quo.

Vocational and Technical Education

Interest by the Federal Government in ensuring an adequate supply of trade and technical personnel dates back almost half a century, to the first grants made to agriculture under the Agriculture Instruction Act of 1913 and to the Technical Education Act of 1919, which introduced the principle of matching provincial capital expenditures. Though interest in vocational education increased somewhat over the years, only recently has it been generally recognized that a serious shortage of training facilities and effective technical and vocational programmes has hampered economic advancement and production. Increased urbanization, expansion in technology and secondary manufacture, and greater interest in school "dropouts" who lack training and have, in any case, insufficient education to benefit by it, will influence Canada's education efforts. The realization that the country can no longer count on immigrants to provide the necessary skills has served as a stimulus to greater effort.

The current federal-provincial agreement (the Technical and Vocational Training Agreement, operating from April 1961, to March 31, 1967) provides that the Federal Government will reimburse the provinces for 75 per cent of the cost of buildings and equipment for vocational training. There are the following programmes under this agreement: technical and vocational courses in secondary schools for pupils spending 50 per cent or more of their time in

the vocational field; training as technicians for post-secondary students; trade and other forms of occupational training for young people about to enter the world of work, employed persons wishing to improve their skill, and persons in need of retraining; training in co-operation with industry; training of the unemployed; training of the disabled; training of vocational teachers; training for federal departments and agencies; student aid; and apprenticeship training.

The pattern of vocational education and training varies from province to province, but three basic types are evident -- trade schools, technical and composite secondary schools, and post-secondary technical institutes. The trade and technical schools, except for private institutions, are under the provincial departments. The apprenticeship training provided is basically learning on the job supplemented by class instruction on a full-time basis for periods from three to ten weeks a year, or evening classes at trade schools. In addition, there are a number of large companies that operate their own apprenticeship programmes, with no help from the provincial governments.

Attention has recently been directed to increasing the number of technicians, who, with engineers and scientists, are much in demand. Training in industry has been increasing rapidly and accelerated expansion can be expected for some years. It is likely that educational thinking will, in the years ahead, be directed more toward providing situations for life-long education, with greater emphasis on retraining, rehabilitation, refresher courses, upgrading, and education for leisure, hobbies, and cultural pursuits.

Teachers

About one out of every 25 in the work force is a teacher and about a quarter of the total population is enrolled in formal education courses or classes. During the last half of the 1950s, there was a critical shortage of teachers at the elementary and secondary levels. The situation is now somewhat better, the shortage being limited to well-qualified personnel, and there is considerable effort to raise the requirements for certification, including an increase of professional training from one to two years. However, a shortage is now becoming evident at the university level because of increased enrolments. It is predicted that the number of teachers required at the higher-education level will double in less than ten years, and that the problem of recruiting specialists with advanced degrees and other desirable qualifications will increase considerably.

Most provinces require candidates for teaching in elementary schools to have high-school completion or better, with at least one year of professional training at a teaching college in or outside a university. The trend is toward providing the courses on a college or university campus and, in the Western provinces, candidates enter a four-year college, though they may withdraw temporarily after two or three years with a temporary certificate. Their college year generally consists of five subjects, of which four are in arts and science and the other in education.

At the secondary level, efforts have been made to ensure that all teachers are university graduates with an additional year of professional training; where possible, they have been required to be honours graduates or specialists. In some provinces candidates enroll in a four-year university course, like elementary teachers, with one-fifth of the subject-matter professional training and the rest being in the selected teaching areas.

During 1963-64, there were 185,273 teachers and principals in the public elementary and secondary schools. Of these, 64 per cent were women and, of the women, 56 per cent were married. Outside Quebec, for which data were not available, 27 per cent of all teachers taught secondary grades only. About three-quarters of the secondary teachers had one or more university degrees, compared with better than one in ten for the elementary teachers. The average teacher had been teaching seven or eight years and had held his or her present position for three or four years.

In the colleges and universities, staff members are selected mainly because of their academic qualifications and knowledge of research. For the higher ranks, a record of publication is also a factor. It is generally assumed that a professor will communicate his knowledge to the class successfully without special professional training. In 1962-63, 45 per cent of university teachers held a doctorate, 33 per cent had a master's degree and the remaining 12 per cent, with a few exceptions, employed for special duties, were graduates.

During 1963-64, there were 124 normal schools, teachers' colleges and university faculties engaged in teacher preparation (107 in Quebec), and 25 degree-granting schools or faculties that were an integral part of colleges or universities.

Most teachers are now paid according to a local salary schedule that provides for a basic beginning salary with increments for superior qualifications, experience, and additional responsibilities. University teachers are likewise on salary schedules, though, in exceptional cases, a professor may be paid as much as is necessary to retain his services.

Most teachers belong to a professional association and have reasonable security. The work of these associations is divided between efforts concerned with pay, security and the like, and the professional development of the staff. All associations publish a professional journal. The number of supervisors and specialists is increasing and, in most provinces, "in-service" training is being used more and more. The largest number of summer-school students continues to come from the teaching ranks, both the salary schedules and opportunities for advancement providing an incentive to such efforts.

Higher Education

Since pioneer days, Canada's English-speaking and French-speaking populations have established institutions of higher education. In the Atlantic Provinces, in some instances, and in Quebec and Ontario, these institutions were generally established by members of a community or church congregation or by

private individuals. In the Western provinces, which were settled somewhat later, legislatures were instrumental in the establishment of universities, and took the responsibility for selecting their sites, providing support for them, and, to some extent, deciding what services they should provide.

In the present era of rapid communication and travel, of larger economic areas and greater urbanization, changes are being introduced rapidly. It is customary for a provincial legislature to make grants to all provincial universities, and federal moneys are distributed to public and private institutions, church-affiliated or not.

Because of the amounts of money involved, predictions that the number of university places required will double during the next decade, and increasing interest in university graduates and research (among other things), several provincial governments are considering appointing, or have already appointed, a deputy minister or assistant to concern himself with the universities. His staff will co-ordinate the services provided by all the province's institutions, and will study the need of institutions and places for expansion and problems of finance, at the same time avoiding interference with the autonomy of universities in subject matter, internal organization and so forth.

Among the many problems of concern to university administrators today are: co-ordinating the work of graduate schools and expanding their offerings; developing more courses and programmes of Oriental studies in the interest of better East-West relations; processing multiple applications for scholarships and entrance; determining more effective means of selection for university entrance; the 12-month operation of universities; and the introduction or expansion of junior and community colleges. Most institutions in fact operate summer schools, and some have "inter-sessions" as well; but the suggestion for 12-month operation is that there be three equal divisions of four months each, with provision for short recesses. One new university, Simon Fraser, plans to provide year-round courses, and another, Waterloo, already provides alternate study-work periods of three months for two groups of engineering students and will use the same organization in other appropriate areas, requiring one additional year for a degree.

There were about 370 institutions of higher education in Canada in 1965. Of these, about 39 were conferring degrees and 12 were holding their powers in abeyance. Included were provincial institutions, institutions possessing religious affiliations and special institutions giving degrees in theology only. The others included a variety of provincial, federal, church-affiliated and private non-denominational colleges of arts and science, professional and junior colleges and collèges classiques, which do not grant degrees. The large French-language universities, patterned on the universities of France (Montreal, Laval and Sherbrooke), are all in Quebec. The University of Ottawa and St. Joseph's University, New Brunswick, are bilingual. The English-language universities resemble those of Britain, Germany and the United States. They are adapted to Canadian needs, and provide instruction in English only, though they offer courses in other languages.

To enter an English-language university, a student must have graduated from high school with senior matriculation (or, in some cases, junior matriculation, which requires a year less). Graduation in arts or pure science usually follows three years after senior matriculation, or four years for the student who takes an "honours" course with specialization in one subject or two related subjects. Requirements for entrance to professional courses vary somewhat depending on the faculty, and may follow completion of all or part of an arts course. Such courses may require from three to seven years for graduation.

Opportunities for graduate study in one or two fields at least are now available in most universities, while the larger institutions offer advanced work in many faculties. The master's degree is obtained one or more years after completion of a bachelor degree with honours, and the doctorate after an additional two years or more.

In the French-language universities, the majority of students enter with the baccalauréat ès arts obtained in the collège classique, and continue towards a maitrise ès arts or a licence, which they can earn in one year, or a doctorat, which requires at least two additional years. For a baccalauréat in science, engineering and commerce, candidates are admitted from the public secondary school, as well as from the collège classique. The trend is toward more entering from the secondary schools.

Enrolment in Canada's universities and colleges during the autumn of 1963-64 was estimated at 158,270 for full-time students, with about as many taking part-time courses offered by the university -- evening, extra-mural, summer or other. In addition, there were a quarter as many full-time pre-matriculation students enrolled during the regular session, and almost half as many in all other courses, including those offered during the regular session, at summer school, and extra-murally. More than 30 per cent of the university-grade students, and a greater proportion of all others, were women. During 1963-64, almost 28,000 students were granted their first degree, 3,780 earned the master's degree and 520 the doctorate. About 11 per cent of all undergraduate students enrolled in education courses during 1963-64. Teachers constituted the largest part of the summer-school and extra-mural students.

Financing Canadian Education

Since 1944 the percentage of Canada's gross national product spent on education rose from 1.4 in 1943 to 5.0 in 1961, and it has continued rising. In 1961, 30 per cent of municipal, 28 per cent of provincial and 2.3 per cent of federal expenditure went for education. Total expenditure for formal education and training and related educational activities actually amounted to over $1,912,600,000. If this appears high, it should be remembered that it provides for professional service and daily care, five days a week and 200 days a year, for a quarter of the population.

Federal expenditures on education included sums for the education of the Indians and Eskimos, members of the armed services and their children and some dependent children of the war dead and veterans. Other federal sums are contributed to the provinces on a $2 per capita basis and distributed

among the universities by the Canadian Universities Foundation, according to full-time enrolment. In addition, the Federal Government has made provision for loans to enable the universities to build residences for out-of-town students and guaranteed to needy students loans of up to $1,000 a year from one to five years, free of interest until after graduation. During 1964-65, the first year of this programme, the $4 million allocated was rapidly exhausted.

Various federal departments and councils, such as the Departments of Health and Welfare and Agriculture and the National Research Council and Defence Research Board, provide grants for research to university professors and to graduate students.

The Vocational and Technical Branch of the Department of Labour, under agreement with the provinces, makes grants available for the following purposes: vocational courses in secondary schools; technical institutes, adult trade and other occupational training and retraining, including apprenticeship; management education, including supervision, technical analysis and services; and administration. Money is provided to assist with capital projects, equipment, current expenditure on vocational technical programmes and teacher training. Such contributions are aimed at ensuring a more highly-skilled work force. The activities of the Branch are administrative, supervisory and consultative, and stress the co-ordinating of training activities provided for the ten provinces. From 1961 to 1964, $341 million was contributed by the Federal Government and $219 million by the provincial governments to erect 14 new technical institutes and 52 trade schools, and to enlarge many others and bring the number of vocational high schools to 305. This provided a total of 153,371 student places for trade and technical trainees.

In addition to their expenditures on such provincial schools as teachers' colleges, trade and technical schools, and special schools for the deaf, the blind and "problem cases", the province makes grants to school-boards, provides for services to and supervision of the schools, and contributes to audio-visual aids, guidance, curriculum studies, textbooks, school supplies and teachers' pensions.

There is considerable variation in the grant schemes used by the provinces. In the beginning, most provinces used flat and incentive grants of one sort or another, based on such considerations as number of teachers, enrolment, days in session and attendance. Special grants were introduced as an incentive to such items as purchasing special equipment or serving hot school lunches. Next, attempts were made to introduce an equilization formula specially designed to help poorer districts. Recently, there has been an increase in the number adopting some form of foundation programme under which the provincial authority establishes a minimum level of services that local authorities are to provide as an acceptable minimum. Districts may levy for more revenue and provide more services, but not fewer. The province usually decides the size of its contribution, and then strikes a uniform rate for all districts to use on equalized assessments. The provincial contribution pays any difference between the amounts determined and collected in any district and, in addition, distributes an equitable proportion among the schools.

Determining an equitable sharing of costs between the province and districts poses a problem, especially during the first few years.

Private schools are normally supported by student fees, endowment income, contributions of a church congregation, and a variety of gifts and support from sponsoring bodies. A few are self-supporting.

Universities and colleges at present receive about 30.5 per cent of their moneys from student fees, 13 per cent from the Federal Government and 44 per cent from provincial governments, the remainder coming from a variety of sources including endowments, contributions by religious organizations, and other gifts. Plant funds may come largely from building campaigns and grants from corporations, which supplement grants from the province and the Canada Council and loans from the Central Mortgage and Housing Corporation.

School Buildings

The school administrator will be continuously involved in planning and designing new schools as enrolments rise and as new methods and courses are introduced. Considerations of functional architectural cohesiveness, beauty and costs must be weighed with the provision of facilities for team-teaching, audio-visual instruction, air conditioning and so on.

Although the actual number of public schools has remained fairly constant for some years, this fact obscures a surging movement towards the erection of new and larger structures and the closing of isolated one-room schools. The trend is towards the construction of buildings of one and two storeys of modern design and functional plan. These are well-lighted, well-ventilated, and make use of indirect and bilateral lighting, folding or otherwise movable partitions, ramps instead of stairs, rooms planned for special activities or projects such as television and projection, music appreciation, industrial arts, commercial studies and many others. Painting and lighting are undertaken with consideration of the psychological effects of colour and the elimination of glare.

At the first "Canadian Education Showplace", staged in Toronto in 1965, school suppliers displayed the latest in supplies and equipment and educational products. In addition, there was an exhibition of school architecture, showing a selection of the new buildings.

There are still, however, some desolate frame structures in thinly-settled areas, and dingy, over-crowded buildings on small city plots. This is true at all levels. Colleges, for example, range from crowded quarters to well-planned, roomy, permanent structures on broad campuses. Some, finding themselves cramped in the heart of a growing city, have made a fresh start in the suburbs; others have added storeys or expanded through expropriation. The problem of providing adequate facilities in colleges will become increasingly acute during the next ten years or so, and fund-raising campaigns will continue to be necessary.

National Organizations

Throughout Canada there are a great many associations, organized on a local, provincial or national scale, either wholly or partially interested in furthering education. Some are concerned with local activities, some with provincial and some with Canada-wide activities, and others are concerned with problems abroad. A national federation usually has a permanent office and staff and produces a professional magazine. Such federations co-ordinate the work of provincial institutions. Among the better-known organizations are the following:

The Canadian Education Association dates back to 1892. It is supported by the ten departments of education, by school boards and by individual members. It maintains an office in Toronto, published Canadian Education and Research Digest, acts as a clearing-house and maintains liaison among the provincial departments.

The Canadian Teachers' Federation, established in 1919, now enrolls over 125,000 members. It also acts as a clearing-house, undertakes research studies and maintains liaison among the provincial associations of which there are one or more in each province.

The Canadian School Trustees Association and the provincial associations hold annual conferences, publish professional magazines and have fostered research in school finance.

The Canadian Home and School and Parent-Teacher Federation holds annual conventions and provides leadership for provincial affiliates. (The chief French-language organization with national scope is l'Association canadienne des éducateurs de langue française. It holds annual conventions, has produced reports and conducted research.)

The National Conference of Canadian Universities and Colleges acts as a meeting ground for university personnel, a research and information centre and an agency for collective action through committees, etc. (The Canadian Universities Foundation, a related body, is responsible, among its other duties, for the distribution of federal grants.)

Fédération des collèges classiques has recently established an office in Montreal, and the Canadian Association of University Teachers has established one in Ottawa.

The Canadian Association for Adult Education serves as a clearing-house, holds radio forums and conferences and publishes Continuous Learning. Its permanent office is in Toronto. (Its counterpart in Quebec, l'Institut canadien d'éducation des adultes, serves the same functions for French-speaking adults.)

The Canadian Council on Research in Education has an executive body that is representative of most of the bodies noted above that are interested in research. It was established to promote and foster research and to maintain liaison throughout the field. It is expected that it will develop a regular publication programme; so far, it has made occasional reports available.

Looking Ahead

In Canada, as throughout most Western countries, and many others, education is undergoing a quiet revolution. In response to social, economic and political pressures, its role is changing so that it can contribute more to economic advance and social progress. At one time a distinct line was regarded as separating the academic and professional from the world outside; today this has almost disappeared. With increased emphasis on trade and technical education, closer liaison between municipalities and school boards for finance, more university people serving part-time outside the university or on loan to business or government, and contracted research being undertaken by the universities, the universities and schools are returning to the community. Part-time and refresher courses will increase this trend, as will participation of the National Film Board, the Canadian Broadcasting Association, libraries and museums.

There are both quantitative and qualitative major expansions. The Canadian population has been increasing now for a full generation, so that, while members of one generation are swelling university ranks, members of the next are pattering to kindergarten doors. Although the birth-rate is no longer at its peak, the median age for marriage having dropped, the present increase is appreciable. Actually, Canada's population is expected to increase by about 22 per cent during the 1960s and to pass the 20-million mark in 1966. The percentages of both young and old will increase disproportionately. Added to the expected increase in actual numbers is the tendency for youth to stay longer in school or to return at both the high-school and university levels as more services are provided.

At the same time, an "explosion" in scientific knowledge has raised many problems concerning the best use of the time of students. Attempts to update and streamline mathematics and science are observable in the new mathematics, new physics and so on, which emphasize structure and are aimed at increasing the power of the student in the subject. It is likely that curricular content and organization will undergo considerable development during the next decade.

Both the economic and social structures are undergoing metamorphosis, and the changes are affecting the demands on education and the role it might perform. Most of the planning undertaken so far is influenced more by economic than social needs, in part because economic data are more easily come by. It is likely that progress will result in the social areas from rural-urban movement, increased urbanization, crowding, urban renewal and so on.

Efforts at the elementary-secondary level will be aimed at providing greater opportunity with allowances for individual differences, at obtaining functional mastery of a second language, making better use of modern audio-visual aids and other learning devices, and ensuring that all children leave school with an educational background sufficient for training on the job or possess competence in some job area adequate for employment.

At the post-secondary level there is need for expansion of technical institutes, and the number of junior colleges will be increased considerably. Community colleges may be established as the demand for post-secondary education grows with increased automation and leisure.

At the university level, in addition to increasing the number of institutions and places, consideration is being given to establishing better university entrance measures, eliminating wastage in some courses and introducing greater variety in the courses offered -- such as an expansion of facilities for Oriental studies. The graduate schools have been growing faster than the under-graduate, but a good deal more expansion will occur.

There have been more innovations introduced during the past decade than in any previous ten years, and there is every reason to expect that considerable progress will be made in the years to come.

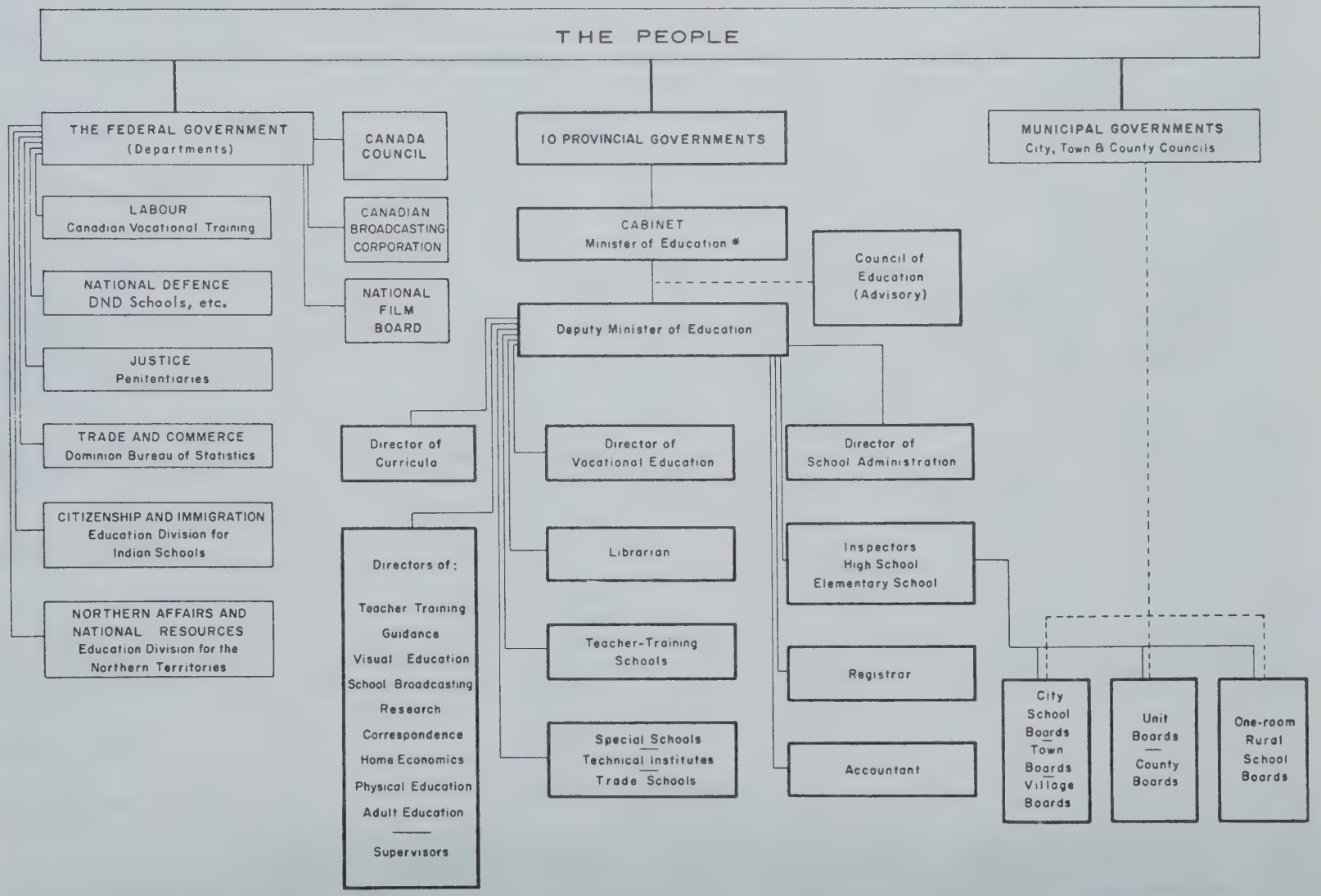
RP/A

Summary of Education Statistics, Canada, 1953-54 and 1963-64

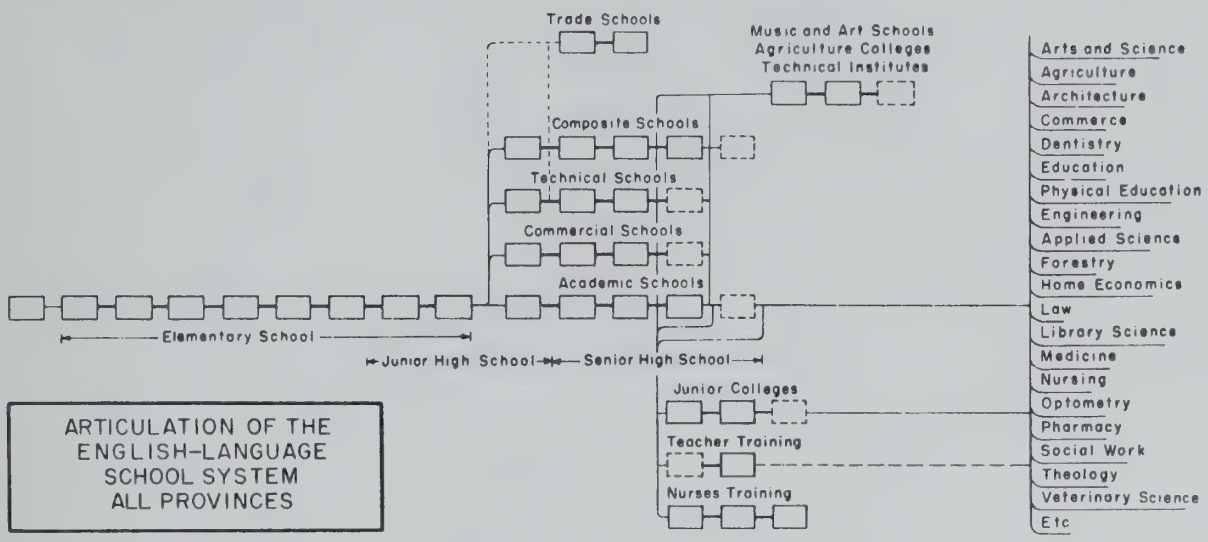
	1953-54				1963-64			
	Numbers of			Population June 1954	Numbers of			Population June 1964
	Schools	Teachers	Pupils		Schools	Teachers	Pupils	
Estimated population: Ages 5-19				4,061,100				6,469,100
20-24				1,115,600				1,692,800
Full-Time Courses								
Elementary Secondary:								
Public and separate schools(1)	30,081	101,951	2,796,809		23,017	179,859	4,546,111	
Schools for Indians and for Eskimos	504	728	31,247		476	1,623	38,115	
Schools for the blind	6	75	568		6	100	772	
Schools for the deaf	9	191	1,545		13	349	2,561	
Private schools	945	6,057	115,607		1,207	12,380	202,872	
Higher Education:								
University grade - full-time	283	6,869	60,046		365	12,000	179,000	
part-time		4,529	2,000			7,540	38,750	
Teacher Training:								
Teachers' colleges	118	1,246	12,072		124	1,476	23,821	
Faculties of education(2)	24	224	2,265		25	506	12,970	
Trade and Technical:								
Public - Programme 3(3)	)		)		..	..	34,593	
Programme 5	)	not available	)		..	..	48,923	
Programme 6	)		)		..	..	2,863	
Institute of Technology	..	..	..		35	2,000(e)	14,492	
Private - Trade schools	..	..	..		..	622(4)	13,477(4)	
Business schools	222	816	18,593		257(4)	1,087(4)	20,214(4)	
Totals								
Part-Time Courses for Adults								
Public schools	..	..	..		..	..	727,356(4)	
Universities and colleges			72,342		88(4)	..	207,189(4)	
Private schools	..	..	14,853(5)		..	..	65,908(4)	

(1) In the provinces and the Territories and including National Defence schools overseas
(2) Also included under Higher Education
(3) Programmes under the Federal-Provincial Agreements of 1961:
Programme 3 - Trade and other occupational training
Programme 5 - Training of the unemployed
Programme 6 - Training of the disabled
(4) Data for 1962-63
(5) Business colleges only
(e) Estimate

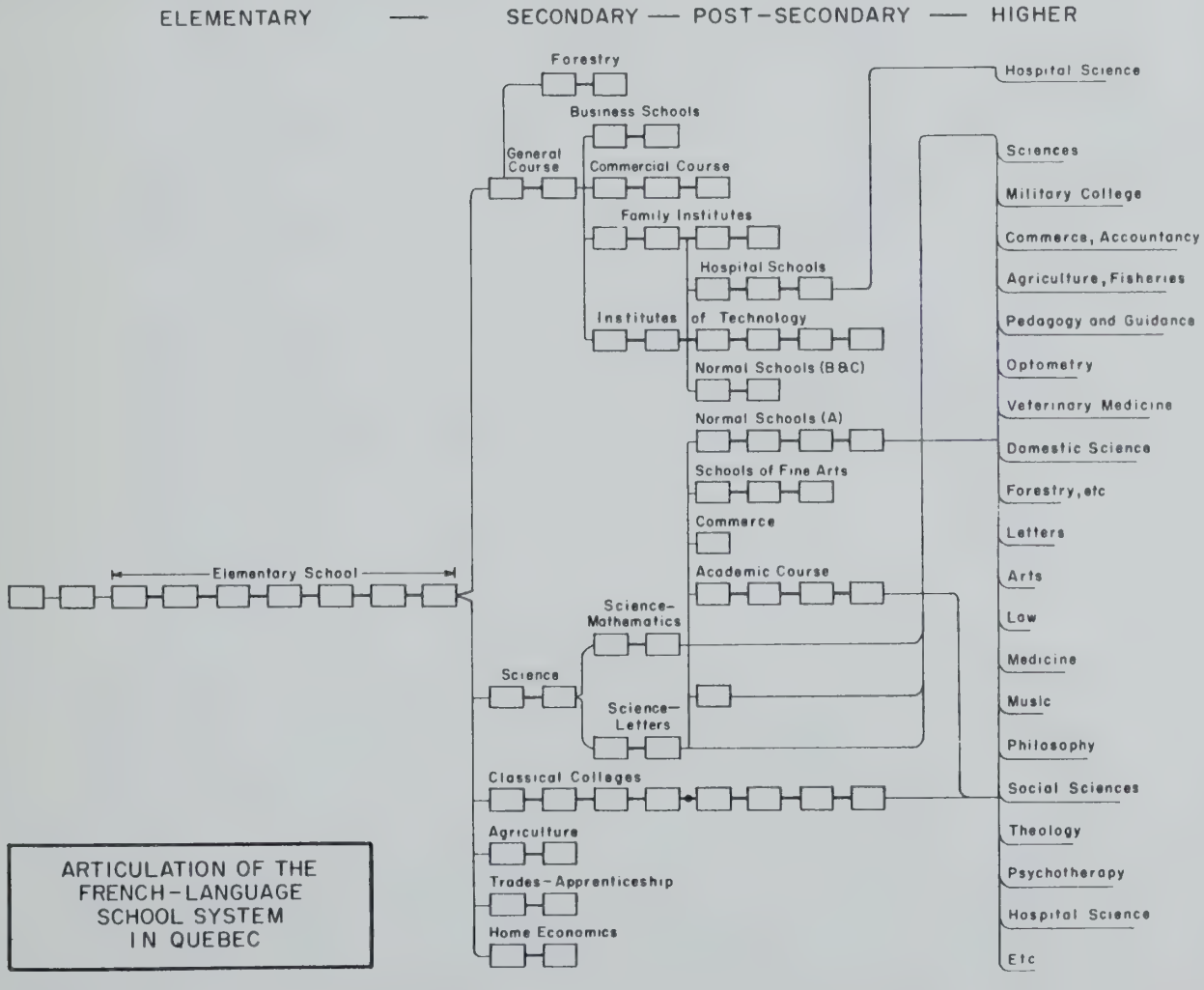
ADMINISTRATION OF EDUCATION 1964



*A TYPICAL PROVINCIAL DEPARTMENT – QUEBEC AND NEWFOUNDLAND ARE LEAST REPRESENTATIVE.



ARTICULATION OF THE ENGLISH-LANGUAGE SCHOOL SYSTEM ALL PROVINCES



ARTICULATION OF THE FRENCH-LANGUAGE SCHOOL SYSTEM IN QUEBEC

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INFORMATION DIVISION
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THE ROYAL CANADIAN MOUNTED POLICE

Canada's federal police force, the Royal Canadian Mounted Police, is a modern organization as well as a living tradition and a colourful reminder of the romantic aspects of its country's past.

Originally formed to keep order in the vast expanse lying beyond the western boundaries of Manitoba, the RCMP now enforces federal laws in all ten Canadian provinces and polices the Northwest Territories and the Yukon. Under contract, it also acts as the provincial police force in eight provinces and does local policing for about 150 municipalities. Directed and administered from headquarters in Ottawa, 11,500 uniformed members, civilian members and special constables are complemented by 2,500 public servants and civilian employees.

Soon after the passing of the British North America Act in 1867, the newborn Federal Government acquired from the Hudson's Bay Company an enormous and potentially rich territory stretching from the Red River Valley in Manitoba west to the Rockies and north from the United States border to the Arctic archipelago. However, before these resources could be developed, law and order had to be established throughout this vast region. The Government at Ottawa needed an instrument for the assertion of its authority, the enforcement of the laws of Canada and eventually the safe construction of a transcontinental railroad -- British Columbia's price for entering Confederation.

JUL 18 1973
UNIVERSITY OF ILLINOIS

North West Mounted Police

Credit for the peaceful settlement of Western Canada rightly falls to the North West Mounted Police, who were organized in 1873 to administer justice in the regions ceded by the Hudson's Bay Company. In July 1874, 275 men rode westward from Fort Dufferin, Manitoba, their mission to pacify the warring tribes and protect the plains country from adventurers. By autumn of the same year, they had made their presence known as far west as the foothills of the Rocky Mountains. Two years later, the force had become firmly established and had won the confidence and respect of native chiefs and their people. Devoid of the arrogance and brutality so often displayed by newcomers to the West, the NWMP endeavoured to make law-abiding citizens of both white and red men.

As a semi-military body, modelled partly on the Royal Irish Constabulary, the North West Mounted Police followed the army style in administration and dress. The scarlet tunic, worn earlier by the highly respected and popular soldiers of Queen Victoria during their years in the West, was from the first an important part of the NWMP uniform, and was destined to become a badge of friendly authority.

An Early Test

A test for the infant force was not long in coming as thousands of Sioux under Sitting Bull sought refuge north of the United States border following the Indian uprising in 1876. Fear of retaliation drove them to Canada after the battle of Little Big Horn, where a U.S. cavalry regiment under Lieutenant-Colonel George A. Custer was annihilated.

Upon 214 officers and men of the North West Mounted Police weighed the threat of untold bloodshed and strife. Tactful handling of the situation, combined with the loyalty of Crowfoot, chief of the great Blackfoot confederacy, whose friendship had been cultivated with clear foresight, led to the Blackfoot Treaty, perhaps the most important Indian treaty in Canadian history. By 1880, the North West Mounted Police had established Canadian sovereighty over the West, and the transition from buffalo hunting to farming was under way.

Less than a decade had passed, however, when this peaceful period came to an end. Construction of the Canadian Pacific Railway heralded settlement of the Prairies, which in turn created reservations and stirred up Indian and Métis resentment against the intruding Easterners. Demanding redress or compensation for their grievances, the Métis rebelled in the spring of 1885 under the leadership of Louis Riel. Once again, however, the Blackfoot remained loyal and the NWMP were able to bear the strain until militia arrived from the East to quell the uprising.

With the defeat of the rebels and the capture of their leaders, the rebellion came to an end and rapid change and development of the Northwest territories followed. New settlers swarmed onto the high plains, which are ideally suited to wheat farming and cattle ranching. Soon a network of patrols spread out from NWMP detachments linking the settlements.

Gold Rush Days

By 1895, the northern regions of Canada came within the scope of the force, and in particular the Yukon, as thousands of prospectors flocked to the gold-fields. The NWMP moved quickly into the region and established posts at strategic points. Once again, by vigilant and determined law enforcement and a ban on firearms, fewer than 250 members kept murder and serious crime to a minimum. Among their many tasks, the NWMP carried mail to the scattered camps, adding 64,000 miles in one year alone to patrols branching out by boat and dog-sled over the North.

After the Boer War, in which many members of the force served conspicuously with Canadian regiments, settlement of the West accelerated as some 300,000 homesteaders made their homes on the plains. A total of 84 detachments stretched from the U.S. border to the Arctic and from Hudson Bay to Alaska.

World recognition came when a Mounted contingent rode through London on Queen Victoria's Diamond Jubilee. In 1904, King Edward VII bestowed on the force the prefix "Royal" in recognition of its service. A year later, the provinces of Saskatchewan and Alberta were formed and, with Manitoba, divided the Western plains into the three Prairie Provinces. For the next ten years, the Mounted Police carried out their many varied and often hazardous duties of law enforcement and mercy, covering thousands of miles on horseback, by dog-team, canoes and boats. The First World War reduced the strength of the force owing to enlistments in the Canadian and British armed forces, as it was not until 1918 that the Canadian Government authorized the dispatch of two squadrons of RNWMP for service in France and Siberia. After the war, the total strength rose to 1,200.

Present Name Adopted

Canada-wide jurisdiction was extended to the force in 1920, and with this came the present name of Royal Canadian Mounted Police and the modern era involving operations by land, sea and air over an area as large as Europe. Famous patrols in 1924 pushed deep into the Arctic regions, and in 1928 the police schooner *St. Roch* undertook supply and patrol duties in northern waters. In 1931-32, the RCMP took over provincial police duties in Saskatchewan, Alberta, Manitoba and the three Maritime Provinces (New Brunswick, Nova Scotia and Prince Edward Island), and absorbed the Preventive Service of the Department of National Revenue.

A marine section was formed in 1932, which played an important role until the Second World War in cutting revenue losses through smuggling, which had been costing the Federal Treasury millions of dollars. During the war, 209 officers and men, with 33 ships and boats, were transferred to the Royal Canadian Navy for coastal and seagoing patrols. They filled key positions, as reflected in their casualty rate of 41 per cent. In 1942 the RCMP *St. Roch* became the first ship to navigate the Northwest Passage from West to East. She completed the return voyage in 1944, becoming the first vessel to sail the Passage in both directions.

Long, tedious overland journeys through difficult terrain became less frequent with the advent of air travel and the formation of an Air Division in 1937. When the Second World War began, the Royal Canadian Air Force took over most Air Division personnel and equipment. Despite this depletion, the RCMP continued to make many flights into the North on police and defence missions until the Division was reformed in 1946.

Service in Second World War

The force also contributed a provost company to the Armed Forces as part of the First Canadian Division, which provided the bulk of provost officer personnel to all staff formations. Besides discipline enforcement, traffic duty, collecting information on convoy movements and unit locations, they were employed at detention barracks, training depots and special investigation units. In co-operation with the Allied Military Government in occupied countries, they helped reorganize and direct civilian police systems, fire departments and civil defence.

A major task of the force during the war was the safeguarding of essential industry, by the implementation of anti-sabotage and protective measures. The RCMP not only kept check on draft evaders and deserters but engaged in counter-espionage work, with such success that authorities were able to announce in 1945 that subversive activities in Canada had been almost wholly disrupted by the speedy arrest of hostile elements. To cope with the tremendous responsibility with which they were faced, the force had to improvise and, with the assistance of specially-engaged personnel, they guarded vulnerable points and executed wartime legislation.

Following hostilities, both the air and marine arms of the RCMP were reorganized. The Air Division has grown to a unit of 22 aircraft, including several with short-takeoff-and-landing (STOL) capabilities. Stationed at 16 locations across Canada, they fly over two million air-miles a year on police operational duties.

Thirty-three RCMP patrol vessels now perform law-enforcement duties in Canadian territorial waters on the Atlantic and Pacific coasts and on inland waters. Over 300 smaller boats are employed on lesser waterways.

With the additional responsibility of provincial police duties in both British Columbia and Newfoundland in 1950, RCMP jurisdiction took on a truly national flavour. Its character has certainly changed greatly in 100 years, but the force still reflects much of the glamour of the frontier through its northern and far-flung detachments.

Modern assignments range from Arctic patrolling to preventive policing in larger centres, from Criminal Code policing in many cities and towns to the enforcement of laws against narcotic drug, counterfeiting, illicit distilling and customs evasion, as well as the identification of criminals anywhere in Canada.

To aid in these duties the RCMP has an extensive force-wide radio network connecting posts and teleprinter and facsimile systems. Transports, planes and ships are radio-equipped. Modern technology is available in the form of duplexed computer equipment at the Canadian Police Information Centre, RCMP Headquarters, Ottawa. It provides the force, and other law-enforcement agencies in Canada, with immediate access *via* remote terminals to information on stolen vehicles, licences, identifiable stolen property and wanted persons.

Canada's representative in INTERPOL is also the Royal Canadian Mounted Police.

Recruiting Methods

For such a variety of tasks, men of many talents are required, yet each candidate must possess personal integrity, a high degree of intelligence and a sense of responsibility. The selection of recruits is made from applicants possessing the basic qualifications by means of educational examinations, psychometric tests and interviewing.

To qualify, an applicant must be a British subject or Canadian citizen resident in Canada, between the ages of 18 and 29, single, at least 5'8" in height, physically fit and able to speak, read and write English or French. Members of the RCMP cannot marry until they have served two years and are 21 years of age. The initial enlistment period is for five years and a member is eligible for a life pension after 20 years service under the provisions of the RCMP Act. Careful selection at recruit level is followed by periodic interviews throughout the entire career of the member. The recruit's six months of training includes drill, firearms instruction, criminal law, investigation, public relations, swimming, physical training and a great variety of academic and social subjects.

The training and development program is of very wide scope and of a continuing nature. Advanced training in investigation, management and specialized instruction is provided. In 1938, the RCMP instituted the Canadian Police College, which provides courses in Ottawa to members and selected personnel of other police forces in Canada and around the world.

The *RCMP Quarterly*, which is available to the public by subscription, is a popular and much-quoted magazine. The RCMP Musical Ride has been acclaimed in Britain, Japan and North America as a fine display of horsemanship. The force's band, first established in 1876, has evolved into an élite concert ensemble and plays to a live audience approaching half a million a year.

Despite its many extracurricular activities, the RCMP remains the "Silent Force", unpretentious and unobtrusive. Quietly and without fanfare it lives up to the motto: "Maintiens le Droit".

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THE ROYAL CANADIAN MOUNTED POLICE

The Royal Canadian Mounted Police, the only federal police force in Canada, is a business-like organization and a living tradition.

A reminder of Canada's romantic past, an example of quiet devotion and dignity, and a symbol to the world at large of the courage and determination characteristic of their homeland, the scarlet and gold horsemen retain their appeal for youth and age alike.

Originally formed to keep order in the vast expanse which lay beyond the western boundaries of Manitoba, the Force remains sovereign in the Northwest Territories and the Yukon.

Because of the division of responsibility between the ten provincial legislatures and the federal authority in Ottawa, the functions of the Force are many and varied. From its general headquarters in the capital, the operations of 17 divisions mustering a uniform strength of 6783 officers and men aided by 1785 special constables, civil servants and civilian employees, are directed and co-ordinated.

The peaceful settlement of Western Canada at the turn of the century is an outstanding title to fame of the Royal Canadian Mounted Police, then the North West Mounted Police, which was organized in 1873 by the Federal Government to administer justice in the regions ceded by the Hudson's Bay Company. Quebec and Ontario maintain their own police forces. The other provinces have entered into agreements with the Federal Government whereby the Royal Canadian Mounted Police is hired upon terms of annual payment to enforce the Criminal Code and provincial statutes.

Soon after the passing of the British North America Act in 1867, the newborn Federal Government had acquired an enormous and potentially rich area stretching from the Red River Valley to the Rockies and from the United States to the forests of northern Saskatchewan. Before these resources could be developed, however, order had to be established throughout this vast region. The Government at Ottawa needed an instrument for the assertion of its authority, the enforcement of law and eventually the safe construction of a transcontinental railroad, which was British Columbia's price for entering Confederation.

In 1874, 300 mounted riflemen rode from Manitoba to the Rockies. Their mission was to bridge the plains, pacify the warring tribes and protect the country from adventurers. Two years later, the Force had become firmly planted, and had won the confidence and respect of native chiefs and their people. Devoid of the arrogance and brutality so often displayed by newcomers to the prairies, the Mounted Police endeavoured to make law-abiding citizens of both white and red men.

The North West Mounted Police was modelled partly on the Royal Irish Constabulary and partly on one of the systems followed in India. Since it operated as a military body, policy dictated that it follow the Army in dress and interior economy. But even then, the Prime Minister, Sir John A. MacDonald, stressed that he wanted a plain, mobile, fully civil force suited to the rigours of the country, "with as little gold lace and fuss and feathers as possible". To gratify the Indians' fondness for the scarlet tunics of Queen Victoria's soldiers, who had been stationed in the West, the police were provided with the time-honoured dress. The red coat became the badge of friendly authority.

After the Indian uprising in 1876, which culminated in the Little Big Horn battle where a United States cavalry regiment under Major-General George A. Custer was wiped out to the last man, Sioux fugitives from American retaliation turned northward for refuge. Upon 214 officers and men of the North West Mounted Police depended the security of life and property along hundreds of miles of restless boundary. Tactful handling of the situation, coupled with the loyalty and prestige of Crowfoot, chief of the preponderant Blackfoot Confederacy, led to the conclusion of the most important treaty in Canadian history, which gave the Ottawa Government complete sovereignty of the West.

The transition from buffalo hunting to farming was carried out under Mounted Police surveillance. On the plains, the laws of the Dominion were now administered almost entirely by them.

The construction of the railroad, which brought in some 4,000 turbulent labourers, created new difficulties. Once the dominant Blackfoot Confederacy had accepted the white man's way of life, things moved smoothly, but the distasteful restrictions of the settlements and reservations stirred up the Indians and halfbreeds against the intruding Easterners. Soon they were demanding redress of many grievances, and, in the spring of 1885, led by Louis Riel, the Métis rebelled. For several months, the Force bore up under the strain, while militia columns converged from both Eastern and Western Canada to quell the uprising. The Blackfoot remained loyal. With the defeat of the rebels and the capture of their leaders, the insurrection came to an end.

Rapid change and development followed. New settlers swarmed into the high plains region of the West, which is ideally suited for wheat farming and cattle ranching.

The North, also, was to come within the orbit of the Force. By 1895, thousands of prospectors from Canada and the United States were flocking to the Yukon gold fields. It became obvious that some sort of police control was necessary. Amid a conglomeration of all classes of people, a small detachment of 20 selected officers and men struggled to maintain order. In 1898, a judicial district was established with headquarters at Dawson City, and the Yukon was constituted a separate territory. The population of Dawson had reached 20,000. The duty of carrying the mails to the scattered gold camps was undertaken by the Force, while patrols using boats and sled dogs branched out over the North.

Following the Boer War, in which the Force was well represented, some 300,000 settlers streamed westward and took up homesteads on the plains. By 1904, detachments were opened in the Arctic, extending the Mounted Police beat from the International Boundary to the Arctic Ocean and from Hudson Bay to the Alaskan border.

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of justice and mercy, covering thousands of miles on horseback, in dogsleds, canoes and boats. Soon after the outbreak of the First World War the strength of the Force was increased but fell again due to the number of enlistments in the armed forces. It was not until 1918 that the Government authorized the despatch of two squadrons of the RNWMP for service in France and Siberia. After the Armistice, the establishment rose again to 1,200.

In 1918 the RNWMP was assigned the enforcement of Dominion legislation for the whole of Canada west of Port Arthur and Fort William and in 1920 its jurisdiction was extended to cover the entire country, its headquarters were transferred from Regina to Ottawa, and it was renamed the Royal Canadian Mounted Police. At this time, the Force entered a new territory east of Hudson Bay and aeroplanes came into use. Famous Arctic patrols, in 1924, pushed deep into the Eskimo domain. The most important exploration since then was the forcing of the North West passage in 1942 by the RCMP schooner St. Roch. The historic trip from Vancouver to Halifax lasted 28 months. Most of the pioneering is over now, but the Mounted Police continue to push back the frontiers.

In the period between 1932 and 1934 a Marine Section was established. Today the Mounted Police has under its jurisdiction an area as large as the whole of Europe, while its many duties involve operations by air, sea and land.

The long and tedious journeys overland through difficult terrain became less frequent when the Force began to use aeroplane; at first through the co-operation of the RCAF, and since 1937 by the formation of the Aviation Section. As the Second World War opened, the "Air" Division was establishing its headquarters at Rockcliffe. Although the RCAF took over most of its personnel and equipment, it continued to make many flights in the northern country on police and defence missions until it was re-formed in 1946. It performs various tasks of service and rescue, and helps the Mounted Police to be more efficient than ever. Food can be taken by air to distant detachments and the injured and sick brought out. On the prairies, the transfer of personnel and prisoners is effected more rapidly. Moreover, air patrols make for more rigid control of hunting and fishing.

At sea, the Marine Division played an important part before the Second World War in cutting revenue losses through smuggling. These losses had cost the federal Treasury uncounted millions of dollars. When hostilities broke out, it numbered only 209 officers and men and some 33 ships and boats. They were immediately transferred to the Royal Canadian Navy, and assisted in organizing examination sections and in controlling merchant shipping by means of coastal and seagoing patrols. Members of the Marine Division filled key positions in the rapidly expanding naval service. Casualties amounted during the war years to 41 per cent of the establishment.

After the end of hostilities, a new fleet (comprising eight minesweepers converted for escort duties, four motor launches and 13 small patrol vessels) was put in operation.. With added strength, the Marine Division resumed its policing of the Atlantic and Pacific coasts and certain inland waters.

The RCMP further contributed to the armed forces a Provost Company, which became a unit of the First Canadian Division, charged with enforcing discipline, manning traffic points and giving information on convoy movements and unit locations. This body provided the bulk of provost officer personnel posted to the staffs of formations.

Members of this group were also employed at detention barracks, field punishment camps, training depots and special investigation sections. In co-operation with the Allied Military Government in occupied countries, they helped to reorganize and direct civilian police systems, fire departments and civil defence.

The major task of the Force, during the period of emergency, was safeguarding essential industry and implementing anti-sabotage and protective measures. The RCMP not only kept check on draft evaders and deserters but engaged in counter-espionage work, with such success that the authorities were able to announce in 1945 that subversive activities in Canada had been almost wholly disrupted by the speedy arrest of hostile elements. To cope with the tremendous responsibility with which they were faced, the Mounted Police had to improvise. With the assistance of specially-engaged personnel, they guarded vulnerable points and co-operated with all departments in the execution of war-time legislation.

The Reserve, which started as a temporary measure, has become a well-trained, dependable arm of the Force. Part-time workers have been formed into an official unit in which "constable is the only rank". It has done excellent work already and will be called on to perform still greater service for the community.

Geographical obstacles that formerly appeared almost insurmountable have been overcome by means of recent discoveries. RCMP experts have completed an extensive radio network across Canada. All RCMP ships and aircraft are radio-equipped.

Though its character has changed greatly since its formation 90 years ago, the RCMP still reflects much of the glamour of the frontier through its northern and other far-flung detachments. These assignments range from Arctic patrolling and the supervision of Eskimos to ordinary prevention work concerning the contraband of narcotic drugs, counterfeiting, illicit distilling, identification and classification of criminals. The RCMP, on behlaf of Canada, holds a membership in the International Criminal Police Organization. It assumes the protection of public buildings, makes reports on migratory birds, furbearing animals and hunting out of season, takes part in the application of customs and excise laws and, to a small extent, of immigration regulations. It investigates naturalization papers and passports, makes enquiries on applicants for civil positions, enforces statutes governing the Indians, and many other federal enactments, as the Commissioner's annual report shows.

For such tasks, men of many types and talents are needed. Yet each candidate must be characterized by personal integrity, a high degree of intelligence and a sense of responsibility. The selection of recruits is carried out by means of the usual form of educational examinations, supplemented by a psychometric test and a patterned interview.

To qualify, an applicant must be a British subject, or Canadian citizen, between the ages of 18 and 30, unmarried, at least five feet eight inches in height, physically fit, and able to speak, read and write either English or French. Members are not permitted to marry until they have served for two years and are 21 years of age. As the enlistment period is five years, they must re-enlist at the expiration of each term to become eligible for a life pension, which is granted under the provisions of the RCMP Act. Careful selection at the recruit level is followed by periodic interviews conducted by the Personnel Branch throughout the entire career of the policeman. The recruit's eight-months initiation includes drill, horsemanship, shooting, study of criminal law, aids to investigation, public relations and much else, including swimming and life saving.

Riding is a very minor and emergency aspect of actual police work but an important item in training. The riding school, with its gruelling routine, is a splendid form of physical culture and of character development. In order to maintain high morale in the Force and to perpetuate in its personnel a model Canadian youth, equitation is retained as an incomparable school of audacity, calmness, perseverance, mental alertness and sportsmanship. L'esprit cavalier helps to maintain l'esprit du corps.

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Despite its extracurricular activities, the RCMP remains the "Silent Force", unpretentious and unobtrusive. Quietly, and without fanfare, it lives up to its motto: "Maintiens le droit".

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No. 48
(Revised February 1964)

THE ROYAL CANADIAN MOUNTED POLICE

The Royal Canadian Mounted Police, the only federal police force in Canada, is a business-like organization and a living tradition.

A reminder of Canada's romantic past, an example of quiet devotion and dignity, and a symbol to the world at large of the courage and determination characteristic of their homeland, the scarlet and gold horsemen retain their appeal for youth and age alike.

Originally formed to keep order in the vast expanse which lay beyond the western boundaries of Manitoba, the Force remains sovereign in the Northwest Territories and the Yukon.

Because of the division of responsibility between the ten provincial legislatures and the federal authority in Ottawa, the functions of the Force are many and varied. From its general headquarters in the capital, the operations of 17 divisions mustering a uniform strength of 6783 officers and men aided by 1785 special constables, civil servants and civilian employees, are directed and co-ordinated.

The peaceful settlement of Western Canada at the turn of the century is an outstanding title to fame of the Royal Canadian Mounted Police, then the North West Mounted Police, which was organized in 1873 by the Federal Government to administer justice in the regions ceded by the Hudson's Bay Company. Quebec and Ontario maintain their own police forces. The other provinces have entered into agreements with the Federal Government whereby the Royal Canadian Mounted Police is hired upon terms of annual payment to enforce the Criminal Code and provincial statutes.

Soon after the passing of the British North America Act in 1867, the newborn Federal Government had acquired an enormous and potentially rich area stretching from the Red River Valley to the Rockies and from the United States to the forests of northern Saskatchewan. Before these resources could be developed, however, order had to be established throughout this vast region. The Government at Ottawa needed an instrument for the assertion of its authority, the enforcement of law and eventually the safe construction of a transcontinental railroad, which was British Columbia's price for entering Confederation.

In 1874, 300 mounted riflemen rode from Manitoba to the Rockies. Their mission was to bridge the plains, pacify the warring tribes and protect the country from adventurers. Two years later, the Force had become firmly planted, and had won the confidence and respect of native chiefs and their people. Devoid of the arrogance and brutality so often displayed by newcomers to the prairies, the Mounted Police endeavoured to make law-abiding citizens of both white and red men.

The North West Mounted Police was modelled partly on the Royal Irish Constabulary and partly on one of the systems followed in India. Since it operated as a military body, policy dictated that it follow the Army in dress and interior economy. But even then, the Prime Minister, Sir John A. MacDonald, stressed that he wanted a plain, mobile, fully civil force suited to the rigours of the country, "with as little gold lace and fuss and feathers as possible". To gratify the Indians' fondness for the scarlet tunics of Queen Victoria's soldiers, who had been stationed in the West, the police were provided with the time-honoured dress. The red coat became the badge of friendly authority.

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The transition from buffalo hunting to farming was carried out under Mounted Police surveillance. On the plains, the laws of the Dominion were now administered almost entirely by them.

The construction of the railroad, which brought in some 4,000 turbulent labourers, created new difficulties. Once the dominant Blackfoot Confederacy had accepted the white man's way of life, things moved smoothly, but the distasteful restrictions of the settlements and reservations stirred up the Indians and halfbreeds against the intruding Easterners. Soon they were demanding redress of many grievances, and, in the spring of 1885, led by Louis Riel, the Métis rebelled. For several months, the Force bore up under the strain, while militia columns converged from both Eastern and Western Canada to quell the uprising. The Blackfoot remained loyal. With the defeat of the rebels and the capture of their leaders, the insurrection came to an end.

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THE CANADIAN MINISTRY

(In order of precedence in the Privy Council)

The Right Honourable Pierre Elliott Trudeau, Prime Minister

The Honourable A.J. MacEachen, Deputy Prime Minister and Minister of Finance

The Honourable Jean-Luc Pepin, Minister of Transport

The Honourable Jean Chrétien, Minister of Justice and Minister of State for Social Development

The Honourable John Munro, Minister of Indian Affairs and Northern Development

The Honourable H.A. (Bud) Olson, Minister of State for Economic Development and Senate House Leader

The Honourable Herb Gray, Minister of Industry, Trade and Commerce

The Honourable Eugene Whelan, Minister of Agriculture

The Honourable André Ouellet, Minister of Consumer and Corporate Affairs and Postmaster General

The Honourable Daniel MacDonald, Minister of Veterans Affairs

The Honourable Marc Lalonde, Minister of Energy, Mines and Resources

The Honourable Ray Perrault, Leader of the Government in the Senate

The Honourable Roméo LeBlanc, Minister of Fisheries and Oceans

The Honourable John Roberts, Minister of State for Science and Technology and Minister of the Environment

The Honourable Monique Bégin, Minister of National Health and Welfare

The Honourable Jean-Jacques Blais, Minister of Supply and Services

The Honourable Francis Fox, Secretary of State and Minister of Communications

The Honourable Gilles Lamontagne, Minister of National Defence

The Honourable Pierre De Bané, Minister of Regional Economic Expansion

The Honourable Hazen Argue, Minister of State for the Wheat Board

The Honourable Gerald Regan, Minister of Labour and Minister of State for Sports

The Honourable Mark MacGuigan, Secretary of State for External Affairs

The Honourable Robert Kaplan, Solicitor General

The Honourable James Fleming, Minister of State for Multiculturalism

The Honourable William Rompkey, Minister of National Revenue

The Honourable Pierre Bussières, Minister of State in the Department of Finance

The Honourable Charles Lapointe, Minister of State for Small Business

The Honourable Ed Lumley, Minister of State for Trade

The Honourable Yvon Pinard, President of the Privy Council and Government House Leader

The Honourable Donald Johnston, President of the Treasury Board

The Honourable Lloyd Axworthy, Minister of Employment and Immigration and Minister of State for the Status of Women

The Honourable Paul Cosgrove, Minister of Public Works with responsibility for CMHC

The Honourable Judy Erola, Minister of State for Mines

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PROVINCIAL LIEUTENANT-GOVERNORS, PREMIERS AND COMMISSIONERS OF TERRITORIES

(In order of precedence)

Province	Lieutenant-Governor	Premier
Ontario	Hon. Pauline McGibbon	Hon. William G. Davis
Quebec	Hon. Jean-Pierre Côté	Hon. René Lévesque
Nova Scotia	Hon. John Elvin Shaffner	Hon. John M. Buchanan
New Brunswick	Hon. Hédard J. Robichaud	Hon. Richard B. Hatfield
Manitoba	Hon. F.L. Jobin	Hon. Sterling R. Lyon
British Columbia	Hon. Henry Bell-Irving	Hon. W.R. Bennett
Prince Edward Island	Hon. Gordon L. Bennett	Hon. J. Angus MacLean
Saskatchewan	Hon. C. Irwin McIntosh	Hon. Allan Blakeney
Alberta	Hon. Ralph G. Steinhauer	Hon. Peter Lougheed
Newfoundland	Hon. Gordon A. Winter	Hon. Brian Peckford

Territory	Commissioner
Northwest Territories	John. H. Parker
Yukon Territory	Ione Christensen

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(In order of precedence in the Privy Council)

The Right Honourable Joe Clark, Prime Minister

The Honourable Jacques Flynn, Leader of the Government in the Senate, and Minister of Justice and Attorney General

The Honourable Martial Asselin, Minister of State for CIDA

The Honourable Walter Baker, President of the Queen's Privy Council for Canada and Minister of National Revenue

The Honourable Flora MacDonald, Secretary of State for External Affairs

The Honourable James McGrath, Minister of Fisheries and Oceans

The Honourable Erik Nielsen, Minister of Public Works

The Honourable Allan Lawrence, Solicitor General of Canada and Minister of Consumer and Corporate Affairs

The Honourable John Crosbie, Minister of Finance

The Honourable David MacDonald, Secretary of State of Canada and Minister of Communications

The Honourable Lincoln Alexander, Minister of Labour

The Honourable Roch LaSalle, Minister of Supply and Services

The Honourable Donald Mazankowski, Minister of Transport and Minister responsible for the Canadian Wheat Board

The Honourable Elmer MacKay, Minister of Regional Economic Expansion and Minister responsible for CMHC

The Honourable Jake Epp, Minister of Indian Affairs and Northern Development

The Honourable John Fraser, Postmaster General and Minister of the Environment

The Honourable William Jarvis, Minister of State for Federal-Provincial Relations

The Honourable Allan MacKinnon, Minister of National Defence and Minister of Veterans Affairs

The Honourable Sinclair Stevens, President of the Treasury Board

The Honourable John Wise, Minister of Agriculture

The Honourable Ronald Atkey, Minister of Employment and Immigration

The Honourable Ray Hnatyshyn, Minister of Energy, Mines and Resources and Minister of State for Science and Technology

The Honourable David Crombie, Minister of National Health and Welfare

The Honourable Robert R. de Cotret, Minister of Economic Development and Trade (appointed Minister of Industry, Trade and Commerce and Minister of State for Economic Development)

The Honourable Heward Grafftey, Minister of State for Social Programmes

The Honourable Perrin Beatty, Minister of State (Treasury Board)

The Honourable Robert Howie, Minister of State (Transport)

The Honourable Steven Paproski, Minister of State for Fitness and Amateur Sport and Multiculturalism

The Honourable Ronald Huntington, Minister of State for Small Business and Industry

The Honourable Michael Wilson, Minister of State for International Trade.

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The Honourable Donald Campbell Jamieson, Secretary of State for External Affairs

The Honourable Robert Knight Andras, Minister of State and President of the Board of Economic Development Ministers

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Nova Scotia	The Hon. Clarence L. Gosse, M.D., F.R.C.S.(C)	The Hon. Gerald A. Regan
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CANADA'S PENITENTIARY SYSTEM

(Prepared in the Canadian Penitentiary Service, Ottawa.)

Jurisdiction over the Canadian Penitentiary Service, which operates under the Penitentiary Act, belongs to the Solicitor General of Canada. The Service is responsible for all federal penal institutions and for the care and training of persons sentenced or committed to such institutions.

The Commissioner of Penitentiaries, under the direction of the Solicitor General, has control and management of the Service and all matters connected therewith. In the year ended March 31, 1972, the federal penitentiary system consisted of seven maximum-security institutions, nine medium-security, 12 minimum-security and 20 specialized institutions.

The maximum-security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at Dorchester, New Brunswick; Ville de Laval and Ste. Anne des Plaines, Quebec; Kingston and Millhaven, Ontario; Prince Albert, Saskatchewan; and New Westminster, British Columbia. The maximum-security institutions at Ste. Anne des Plaines and Millhaven were constructed as part of a plan to gradually abandon the St. Vincent de Paul and Kingston penitentiaries.

Location of institutions

The medium- and minimum-security institutions and the correctional camps receive inmates transferred from the maximum-security institutions on the basis of their suitability for special forms of training, including vocational training. The medium-security institutions are located as follows:

the Springhill Institution at Springhill, Nova Scotia;

the Federal Training Centre and the Leclerc Institution at Ville de Laval, Que.;

the Cowansville Institution at Cowansville, Que.;

the Collins Bay and Joyceville Institutions within a few miles of Kingston, Ont.;

the Warkworth Institution at Campbellford, Ont.;

the Stony Mountain Institution at Stony Mountain, Manitoba;

the Drumheller Institution at Drumheller, Alberta.

The minimum-security institutions are located as follows:

the Dorchester Penitentiary Farm Annex at Dorchester, N.B.;

the Laval Minimum Security Institution at Ville de Laval, Que.;

the Ste. Anne des Plaines Minimum Security Institution at Ste. Anne des Plaines, Que.;

the Joyceville Institution Farm Annex at Joyceville, Ont.;

the Collins Bay Institution Farm Annex near Kingston, Ont.;

the Millhaven Minimum Security Institution at Millhaven, Ont.;

the Beaver Creek Correctional Camp near Gravenhurst, Ont.;

the Landry Crossing Correctional Camp near Petawawa, Ont.;

the Stony Mountain Institution Farm Annex at Stony Mountain, Man.;

the Saskatchewan Penitentiary Farm Annex at Prince Albert, Sask.;

the William Head Institution at Metchosin, B.C.;

the Agassiz Correctional Camp at Agassiz, B.C.

The Penitentiary Service operates specialized institutions located as follows:

the Correctional Development Centre at Ville de Laval, Que., for the treatment of special cases and the training of staff;

the Regional Medical Centre at Ville de Laval, Que.;

the Regional Reception Centre at Ste. Anne des Plaines, Que.;

the Matsqui Institution at Abbotsford, B.C., for the training of narcotic addicts;

the Regional Medical Centre at Abbotsford, B.C.;

the Mountain Prison near Agassiz, B.C., for the training of older male recidivists;

the Prison for Women at Kingston, Ont.;

the Regional Medical Centre at Kingston, Ont.;

the Regional Reception Centre at Kingston, Ont.,

and the following community correctional centres:

the Parr Town Centre at St. John, N.B.;

the Carleton Centre at Halifax, N.S.;

the St. Hubert Centre at Montreal, Que.;

the Portsmouth Centre at Kingston, Ont.;

the Montgomery Centre at Toronto, Ont.;

the Osborne Centre at Winnipeg, Man.;

the Oskana Centre at Regina, Sask.;

the Grierson Centre at Edmonton, Alta.;

the Scarboro Centre at Calgary, Alta.;

the West Georgia Centre at Vancouver, B.C.;

the Burrard Centre at Vancouver, B.C.

Some inmates sentenced to penitentiary terms in Newfoundland are held in the provincially-operated centres at St. John's, under the provisions of Section 14 of the Penitentiary Act.

The headquarters of the Penitentiary Service is located at Ottawa and regional directorates at Vancouver, B.C., Kingston, Ontario, and Ville de Laval, Quebec, for the Western, Ontario and Quebec areas, respectively.

Three correctional staff colleges -- at Kingston, Ville de Laval and New Westminster -- are operated for the training of recruits, for refreshing purposes for the training of senior penitentiary officers. These staff colleges also provide excellent facilities for Service-wide conferences of institutional heads and other special groups of officers.

As of March 31, 1972, 36 per cent of the inmates were in maximum-security institutions, 51 per cent in medium security and 13 per cent in minimum security. New institutions have been carefully designed to provide facilities for the rehabilitation of their inmates. All afford space for both indoor and outdoor recreation. Some of the older institutions are being brought up-to-date to meet present-day needs and others are being phased out.

Processing of prisoners

Every inmate enters the federal penal system through a regional reception centre or a receiving institution. The prime purpose of the reception centre is to allow a complete diagnosis of each inmate and, upon the basis of the results of that diagnosis, to allocate the inmate to the institution within the system that will most closely provide the training program and the degree of security that is proper in his case. Facilities provide for admission in one of three categories: age 21 years and younger, age 22 years and older and first offenders, and recidivists. Young or first offenders are segregated from the recidivists. Doctors, psychologists, and social workers examine them for physical and mental health, ability, training and need for schooling, so as to launch them on a rehabilitation program. The program of the correctional services is directed primarily toward assisting the inmate in every way possible to regain his proper place in society. Better facilities to achieve this are constantly available, and the staff involved in the process is highly dedicated. Academic opportunities are provided and inmates attend classes on either a full-time or part-time basis. Other students advance their education by correspondance courses offered at the elementary, secondary or university level. In 1971-72, approximately 3,500 inmates participated in adult-education and vocational-training programs offered by the Penitentiary Service, often with a view to acquiring a trade or profession. Expanded use was made of day parole and temporary absence in order to enable students to attend community education facilities. Fifty inmate students were attending university, high school or community colleges at year-end. Religious programs are provided for all inmates and from 20 per cent to 50 per cent of them participate in services of worship. Most chapels run multi-purpose chapel programs during the week, where, besides religious instruction, other activities related to religious services are carried out. There is active inmate involvement in this section of the program, including suitable community participation.

Living-unit idea

Plans have been completed to introduce inter-disciplinary teams to be responsible for groups of inmates on a living-unit basis in additional institutions besides the five originally selected as pilot institutions. The living-unit idea is an attempt to personalize the contacts between staff and

inmates, to activate interpersonal relations so that inmates, many of whom have regarded authority -- whether inside or outside institutions -- as antagonistic, can learn how to relate to it. This conception breaks down the inmate population into smaller groups with assigned staff, and facilitates the creation of interpersonal relations. The living-unit training program will be conducted on a continuing basis as additional institutions are designated "living-unit institutions." The training program for living-unit officers is scheduled to keep up with the demand in order that training may occur immediately following the competitive and/or selection process. By March 1973, almost 300 living-unit officers will have undergone training; selection beyond March 1973 will be made as additional institutions become living-unit operations. The living-unit program cannot function properly without the simultaneous establishment of adequate and indispensable security teams. The principles of the living unit cannot be implemented successfully without clearly dividing responsibilities between security and living-unit officers. Each institution, therefore, will have its own security force. The separation of correctional officers into two groups will help provide better specialized training, more frequent and effective staff meetings and generally improved security control.

Temporary absences continued to increase sharply during the 1971-72 fiscal year and easily exceeded 35,000. Such leaves are granted for periods of up to three days by the institutional help, and up to 15 days by the Commissioner for humanitarian, rehabilitative and medical reasons. The failure rate of this program was a fraction of 1 per cent.

A sound and healthy program of evening and weekend activities has been expanded over the past year. Eighteen citizen-participation committees are operating in institutions, comprising 150 citizens, and more than 1,500 volunteers are involved in inmates' programs, both institutional and community-oriented. A number of those involved were ex-inmates who were responsible for organizing their own groups in consultation with institutional authorities. The programs included Alcoholics Anonymous, drama, singing, musical instruction, guitar groups and public speaking, as well as a varied assortment of discussion groups run by private agencies, professional and volunteer citizens and community groups, lecturers, films, sports and recreation.

The inmate who is in need receives professional services or counselling by staff specialists who serve an inmate population of about 7,800. There are 20 full-time physicians and five on contractual arrangements or part-time; 19 full-time dentists and three part-time; ten psychiatrists on permanent strength, 15 on contract or part-time; 28 full-time psychologists and ten part-time, and 125 classification officers and social workers.

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(February 1973)

CANADA'S PENITENTIARY SYSTEM

(Prepared in the Canadian Penitentiary Service, Ottawa.)

Jurisdiction over the Canadian Penitentiary Service, which operates under the Penitentiary Act, belongs to the Solicitor General of Canada. The Service is responsible for all federal penal institutions and for the care and training of persons sentenced or committed to such institutions.

The Commissioner of Penitentiaries, under the direction of the Solicitor General, has control and management of the Service and all matters connected therewith. In the year ended March 31, 1972, the federal penitentiary system consisted of seven maximum-security institutions, nine medium-security, 12 minimum-security and 20 specialized institutions.

The maximum-security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at Dorchester, New Brunswick; Ville de Laval and Ste. Anne des Plaines, Quebec; Kingston and Millhaven, Ontario; Prince Albert, Saskatchewan; and New Westminster, British Columbia. The maximum-security institutions at Ste. Anne des Plaines and Millhaven were constructed as part of a plan to gradually abandon the St. Vincent de Paul and Kingston penitentiaries.

Location of institutions

The medium- and minimum-security institutions and the correctional camps receive inmates transferred from the maximum-security institutions on the basis of their suitability for special forms of training, including vocational training. The medium-security institutions are located as follows:

the Springhill Institution at Springhill, Nova Scotia;

the Federal Training Centre and the Leclerc Institution at Ville de Laval, Que.;

the Cowansville Institution at Cowansville, Que.;

the Collins Bay and Joyceville Institutions within a few miles of Kingston, Ont.;

the Warkworth Institution at Campbellford, Ont.;

the Stony Mountain Institution at Stony Mountain, Manitoba;

the Drumheller Institution at Drumheller, Alberta.

The minimum-security institutions are located as follows:

the Dorchester Penitentiary Farm Annex at Dorchester, N.B.;

the Laval Minimum Security Institution at Ville de Laval, Que.;

the Ste. Anne des Plaines Minimum Security Institution at Ste. Anne des Plaines, Que.;

the Joyceville Institution Farm Annex at Joyceville, Ont.;

the Collins Bay Institution Farm Annex near Kingston, Ont.;

the Millhaven Minimum Security Institution at Millhaven, Ont.;

the Beaver Creek Correctional Camp near Gravenhurst, Ont.;

the Landry Crossing Correctional Camp near Petawawa, Ont.;

the Stony Mountain Institution Farm Annex at Stony Mountain, Man.;

the Saskatchewan Penitentiary Farm Annex at Prince Albert, Sask.;

the William Head Institution at Metchosin, B.C.;

the Agassiz Correctional Camp at Agassiz, B.C.

The Penitentiary Service operates specialized institutions located as follows:

the Correctional Development Centre at Ville de Laval, Que., for the treatment of special cases and the training of staff;

the Regional Medical Centre at Ville de Laval, Que.;

the Regional Reception Centre at Ste. Anne des Plaines, Que.;

the Matsqui Institution at Abbotsford, B.C., for the training of narcotic addicts;

the Regional Medical Centre at Abbotsford, B.C.;

the Mountain Prison near Agassiz, B.C., for the training of older male recidivists;

the Prison for Women at Kingston, Ont.;

the Regional Medical Centre at Kingston, Ont.;

the Regional Reception Centre at Kingston, Ont.,

and the following community correctional centres:

the Parr Town Centre at St. John, N.B.;

the Carleton Centre at Halifax, N.S.;

the St. Hubert Centre at Montreal, Que.;

the Portsmouth Centre at Kingston, Ont.;

the Montgomery Centre at Toronto, Ont.;

the Osborne Centre at Winnipeg, Man.;

the Oskana Centre at Regina, Sask.;

the Grierson Centre at Edmonton, Alta.;

the Scarboro Centre at Calgary, Alta.;

the West Georgia Centre at Vancouver, B.C.;

the Burrard Centre at Vancouver, B.C.

Some inmates sentenced to penitentiary terms in Newfoundland are held in the provincially-operated centres at St. John's, under the provisions of Section 14 of the Penitentiary Act.

The headquarters of the Penitentiary Service is located at Ottawa and regional directorates at Vancouver, B.C., Kingston, Ontario, and Ville de Laval, Quebec, for the Western, Ontario and Quebec areas, respectively.

Three correctional staff colleges -- at Kingston, Ville de Laval and New Westminster -- are operated for the training of recruits, for refreshing purposes for the training of senior penitentiary officers. These staff colleges also provide excellent facilities for Service-wide conferences of institutional heads and other special groups of officers.

As of March 31, 1972, 36 per cent of the inmates were in maximum-security institutions, 51 per cent in medium security and 13 per cent in minimum security. New institutions have been carefully designed to provide facilities for the rehabilitation of their inmates. All afford space for both indoor and outdoor recreation. Some of the older institutions are being brought up-to-date to meet present-day needs and others are being phased out.

Processing of prisoners

Every inmate enters the federal penal system through a regional reception centre or a receiving institution. The prime purpose of the reception centre is to allow a complete diagnosis of each inmate and, upon the basis of the results of that diagnosis, to allocate the inmate to the institution within the system that will most closely provide the training program and the degree of security that is proper in his case. Facilities provide for admission in one of three categories: age 21 years and younger, age 22 years and older and first offenders, and recidivists. Young or first offenders are segregated from the recidivists. Doctors, psychologists, and social workers examine them for physical and mental health, ability, training and need for schooling, so as to launch them on a rehabilitation program. The program of the correctional services is directed primarily toward assisting the inmate in every way possible to regain his proper place in society. Better facilities to achieve this are constantly available, and the staff involved in the process is highly dedicated. Academic opportunities are provided and inmates attend classes on either a full-time or part-time basis. Other students advance their education by correspondance courses offered at the elementary, secondary or university level. In 1971-72, approximately 3,500 inmates participated in adult-education and vocational-training programs offered by the Penitentiary Service, often with a view to acquiring a trade or profession. Expanded use was made of day parole and temporary absence in order to enable students to attend community education facilities. Fifty inmate students were attending university, high school or community colleges at year-end. Religious programs are provided for all inmates and from 20 per cent to 50 per cent of them participate in services of worship. Most chapels run multi-purpose chapel programs during the week, where, besides religious instruction, other activities related to religious services are carried out. There is active inmate involvement in this section of the program, including suitable community participation.

Living-unit idea

Plans have been completed to introduce inter-disciplinary teams to be responsible for groups of inmates on a living-unit basis in additional institutions besides the five originally selected as pilot institutions. The living-unit idea is an attempt to personalize the contacts between staff and

inmates, to activate interpersonal relations so that inmates, many of whom have regarded authority -- whether inside or outside institutions -- as antagonistic, can learn how to relate to it. This conception breaks down the inmate population into smaller groups with assigned staff, and facilitates the creation of interpersonal relations. The living-unit training program will be conducted on a continuing basis as additional institutions are designated "living-unit institutions." The training program for living-unit officers is scheduled to keep up with the demand in order that training may occur immediately following the competitive and/or selection process. By March 1973, almost 300 living-unit officers will have undergone training; selection beyond March 1973 will be made as additional institutions become living-unit operations. The living-unit program cannot function properly without the simultaneous establishment of adequate and indispensable security teams. The principles of the living unit cannot be implemented successfully without clearly dividing responsibilities between security and living-unit officers. Each institution, therefore, will have its own security force. The separation of correctional officers into two groups will help provide better specialized training, more frequent and effective staff meetings and generally improved security control.

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CO-OPERATIVE BUSINESS IN CANADA

(Prepared in the Economics Division,
Department of Agriculture, Ottawa)

The pioneers in most parts of Canada had to co-operate simply to survive. Much of this co-operation was informal, as in barn-raising bees, the exchange of labor, and assistance to neighbors in difficulties.

The pioneers developed business organizations that had some co-operative aspects. Meanwhile in England, weavers at Rochdale and others were developing the basic principles for co-operative business. These principles include:

(1) open membership -- all who can benefit from the service may join;

(2) democratic control -- each member has only one vote;

(3) limited return on capital at a modest rate set by the annual meeting;

(4) distribution of surplus on the basis of patronage.

The Beginnings

A co-operative store was opened by coal miners in Stellarton Nova Scotia in 1861 and at least nine more followed in other Nova Scotia communities before 1900. None of these survived after the First World War. The British Canadian Co-operative Society at Sydney Mines was organized in 1906; it is the oldest and one of the most successful co-operatives for the purchasing of consumer goods in Canada today.

In Quebec, development of the co-operative movement began with the formation of a farmers' mutual fire-insurance company in 1852. Co-operative insurance soon spread to the life-insurance field, the first fraternal society being formed in 1863. Mutual fire insurance and fraternal societies continue to be important types of co-operative in Quebec, and have spread to other provinces.

Another early development in Quebec was the organization of La Caisse Populaire de Lévis by Alphonse Desjardins in 1900. This was the beginning of the co-operative credit and savings institutions that now play an important role in the Canadian economy. The first farmers' co-operative trading organization in this province was formed in 1915 and a fishermen's co-operative was organized in 1923.

A Canadian farmers' organization, the Dominion Grange, was granted a federal charter in 1877. It was formed from branches of the American Grange in Ontario and Quebec. At its peak, the Grande had 31,000 members, of whom

26,000 were in Ontario, where they operated a salt-manufacturing company for 38 years. The Grange also went into fire-insurance business for 22 years and, in 1879, started a banking operation that lasted seven years. The Grange eventually united with another farmers' organization.

About 1890 the Patron of Industry organization came to Canada from Michigan; it handled binder twine for farmers on a co-operative basis.

Agriculture in the Prairie Province began to develop rapidly about 1890. This encouraged the early settlers to try to establish better marketing facilities. The beginnings of the co-operative movement in this section of Canada were made by organizations formed by these farmers.

The federal Department of Agriculture helped farmers in the Territories (now Saskatchewan and Alberta) to form co-operative creameries during the 1890's and early 1900's. These provided marketing facilities for cream in communities where there had not been any. Another early co-operative creamery was established in the Duncan area of Vancouver Island in 1896.

There was much dissatisfaction among the Prairie pioneers about the marketing of grain. In the early 1900's, the Territorial Grain Growers Association and the Manitoba Grain Growers Association were formed. While some progress was made in obtaining relief through regulatory legislation, these organizations soon decided that co-operative marketing was the real solution, and the Grain Growers Grain Company was organized in 1906. Some farmer-owned local elevator companies had been formed before this date.

Province-wide co-operative elevator companies were well established in each of the three Prairies Provinces by 1913. The United Grain Growers Ltd. was formed in 1917 by the amalgamation of two of these - the Grain Growers' Grain Company in Manitoba and the Alberta Farmers' Co-operative Elevator Company.

Although some of the early co-operatives survived and are still in existence, many of them either failed or evolved into joint-stock companies. They were handicapped by lack of appropriate legislation dealing with their incorporation and operation. Manitoba enacted the first provincial co-operative act in 1887, and Quebec followed in 1906. In 1908, a federal bill for the incorporation of co-operatives passed the House of Commons, only to be rejected by the Senate. In subsequent years provincial co-operative legislation became general.

Meanwhile, the need of some common association among co-operatives was felt. A small group of leaders, therefore, met in Hamilton on March 6, 1909, to form the Co-operative Union of Canada, which became a co-ordinating and educational body.

Growth

The co-operative movement in Canada expanded rapidly during the first 15 years of this century. In addition to the co-operative grain-elevator companies, numerous small purchasing and marketing co-operatives were formed. However, many of these could not cope with the rapid changes in price levels that occurred between 1916 and 1924 and failed during that period.

Meanwhile, the farmers of Western Canada, having already built a system of co-operative grain elevators and creameries, developed a keen interest in the pooling principle, whereby they could receive average annual prices for their produce rather than the prevailing market price on delivery date. Pooling was particularly attractive in the marketing of cereal grains, as farmers usually delivered most of their grain during the fall, when prices were often lowest. By 1925, Prairie farmers had organized three large grain pools, which handled about half the grain marketed in the Prairie Provinces. A number of other pools organized during the 1920's followed the pattern set by the grain pools.

The severe depression that began in 1929 gave rise to difficult problems for many marketing co-operatives. Prices of agricultural products held a downward trend for over three years and eventually stabilized at extremely low levels. This led to failure of a number of the weaker co-operatives and imperilled even the strong ones. For example, Saskatchewan Co-operative Creameries Ltd. went bankrupt but was later reorganized. The grain pools made payments at time of delivery that were expected to be substantially below the final price. In the 1929-30 crop year, prices fell so rapidly that these initial payments proved to be much higher than prices realized when the grain was sold. Government-guaranteed loans tided the three grain pools over the crisis.

It was now established that even large pooling co-operatives could not stabilize the prices of Canadian grain. The Canadian Wheat Board was formed to assist in this stabilization. It operates pools for marketing the grain of the Prairie Provinces. The Western grain co-operatives, as agents for the Canadian Wheat Board, assemble and store half the grain marketed in Canada.

Despite all the setbacks during the depression, farmers continued to give their support to co-operatives, so that the basic strength of the movement was unimpaired. Indeed, the 1930's brought a revival of interest in co-operative purchasing. The grain-marketing co-operatives, especially the Saskatchewan Wheat Pool, assisted farmers in organizing new co-operatives. With lower prices for farm products, savings on the purchase of farm supplies became more important. For example, in the Prairie Provinces the mechanization of agriculture led to special interest in savings on the cost of petroleum. A small group of farmers organized Consumers Co-operative Refineries Ltd. in 1935 and built the first co-operative oil refinery in the world. This was the beginning of an upsurge in co-operative purchasing in Canada, which continues to this day.

Marketing and Purchasing Co-operatives

The amount of business reported by the 1,906 marketing and purchasing co-operatives for 1960-61 was the largest on record. There are about 2½ times as many co-operatives now as in 1932 and the total amount of business has increased almost tenfold. Of the $1.4 billion in 1961, 72 per cent was represented by the marketing of farm products and most of the balance by the purchasing of farm supplies. Though marketing co-operatives do a larger volume of business, purchasing co-operatives have grown faster. Marketing business during the 1957-61 period was five times as great as during the 1937-41 period, but purchasing business had increased sixteenfold. (Table 1.)

The volume of marketing and purchasing business of co-operatives for each occupied farm and for each person in the farm population is not quite as large in Canada as in the United States. The figures for the United States were $3,038 a farm and $769 a person on farms in 1960. Comparable 1961 figures for Canada were $2,961 and $687. Though these figures require some adjustment for the limited volume of business carried on with the non-farm population, they indicate that co-operation in the agricultural sector is similar in the two countries. Nevertheless, co-operatives handle a larger share of total farm marketings in Canada than in the United States. In Canada, this share is about a third and in the United States about a quarter. The proportion of farm supplies purchased co-operatively is about the same in both countries.

In some countries, agricultural co-operatives play a considerably larger role than this. For example, in Denmark co-operatives handle about 90 per cent of the milk received by dairies and of the hogs slaughtered. In Denmark again, as well as some other European countries, co-operatives are the leading processors and exporters of various agricultural products. (Table 2.)

Grain and seed are by far the most important commodities handled by co-operatives in Canada. This is due to the success of the Prairie grain co-operatives. Although the shares of livestock and livestock products and dairy products marketed through co-operatives are considerably lower than for grain and seed, the total value of these is rather large.

Farm supplies accounted for the greater part of Canadian co-operative purchases of $388 million in 1960-61. The co-operative purchasing of feed is particularly important in Ontario, Quebec and British Columbia, as much of it is shipped in from the Prairies. Petroleum products are the main commodities purchased co-operatively in the Prairie Provinces because so much power machinery is used. (Table 3.)

Co-operative purchasing of some consumer items, especially food, is also large. Even these items are sold mainly to rural people, though in Western Canada co-operative supermarkets now serve large numbers of urban people. A number of these city co-operatives were organized by farmers and gradually gained urban support.

Some co-operatives, especially in Ontario and the other eastern provinces, market a variety of agricultural products and also purchase farm supplies. These, and the purchasing co-operatives, are generally local organizations serving farmers near one trading centre.

A large part of the co-operative marketing in Canada is carried out by province-wide organizations. Each of these assembles, stores and sells a few closely-related commodities; some of them, including most dairy-product and poultry-marketing co-operatives, process as well. Most of the grain and livestock marketed through co-operatives is processed by other firms, though some co-operatives do their own. For example, the Saskatchewan Wheat Pool operates a flour mill, and much of the livestock marketed in Quebec is processed in the packing plants of La Coopérative Fédérée. There is also a co-operative abattoir in Nova Scotia and a small one has operated for many years in Ontario. Likewise, honey, oilseeds, maple syrup, fruits and vegetables are processed in some co-operative plants.

A few marketing and purchasing co-operatives operate on an inter-provincial basis. The United Grain Growers Limited has elevators throughout Western Canada and terminals on the Great Lakes and at Vancouver. Canadian Co-operative Wheat Producers Limited represents the three Western wheat pools. Through it, the three member wheat pools consider programmes and policies common to each of them and to the many thousands of grain producers in the Prairie Provinces.

Canadian Co-operative Implements Limited is an independent, farmer-owned association with its head office in Winnipeg. It was set up in 1940 to manufacture and distribute farm machinery. Its membership extends over the Prairie Provinces and Northwestern Ontario. Sales of machinery by the company in 1961 were 6.5 million dollars.

Canadian Co-operative Wool Growers Limited operates on a national basis. It has handled almost 70 per cent of the wool going through government-registered stations during the past five years.

Co-operative Wholesales

Nearly all of the co-operatives that purchase farm supplies and consumer goods for their members are affiliated with one or more of the 10 co-operative wholesales in Canada. The wholesales provide the affiliated co-operatives with a wide range of goods, but they do not yet meet all the requirements. Some of the wholesales are also central marketing agencies for farm products. The total assets of the 10 wholesales and those of the Inter-provincial Co-operatives Limited exceeded $101 million in 1961. Sales of over $320 million that year were more than double those of 1951.

Over 85 per cent of the total business of the regional wholesales was reported by the three largest - La Coopérative Fédérée de Québec, United Co-operatives of Ontario and Federated Co-operatives Limited in the Prairie Provinces.

La Coopérative Fédérée, with a turnover of over $100 million annually, is one of the mainstays of agriculture in Quebec. It operates a number of abattoirs, and has recently developed contract arrangements with poultry and hog producers to establish an integrated programme of production. It is a major supplier of agricultural feeds, fertilizers, petroleum products and some types of machinery.

In addition to distributing farm supplies, petroleum and equipment, United Co-operatives of Ontario manufactures feeds and fertilizers. It also markets livestock and grain. Formerly, UCO marketed dairy and poultry products, but much of this type of business has been transferred to a new co-operative, the United Dairy and Poultry Co-operative Limited, organized in 1958. Nevertheless, UCO operates a poultry-processing plant and contracts with producers for its supply of broilers and turkeys.

Federated Co-operatives Limited provides consumer goods and farm supplies to local co-operatives throughout Alberta, Saskatchewan, Manitoba and part of Northwestern Ontario. This co-operative was originally formed by amalgamation of the Saskatchewan Co-operative Wholesale Society and Consumers Co-operative Refineries Ltd. It has spread from Saskatchewan to other provinces by amalgamation with the co-operative wholesales serving those areas.

The provincial and regional wholesales in 1940 formed Interprovincial Co-operatives Limited. This central agency co-ordinates the purchases of certain food products, household appliances and farm supplies by consolidating the buying. The co-operative operates a chemical plant in Manitoba, a food plant in British Columbia and a bag factory in Quebec. It has control of the "Co-op" label, which is used on only high-standard co-operative products. There are more Co-op brand products sold every year.

Several Canadian wholesale co-operatives are members of National Co-operatives Limited in the United States. The business activities of this organization include the joint ownership and operation of a milking-machine factory in the United States.

Financial Structure

Although the proportion of agricultural products sold through co-operatives has changed little for some years, co-operative buying of farm supplies and consumer goods has continued to expand. This growth has accompanied a rapid increase in the total assets of the co-operative movement. In 1961 marketing and purchasing co-operatives had total assets of $618 million, compared with $306 million in 1951. In addition, the wholesales had assets of $101 million in 1961, of which $38 million were provided by their member co-operatives.

At least 46 per cent of the capital of these co-operatives was provided by the members. Their equity in the total assets ($618 million) was reported at $285 million in 1961. However, the reported members' equity does not include money lent either directly or through co-operative agencies by members of one co-operative to other co-operatives; this sum may now be substantial. In recent years some co-operatives, especially the wholesales, have offered debentures and other securities for sale to the general public; but it is likely that most of these have been bought by co-operatives or their members.

Local marketing and purchasing co-operatives may get loans from credit unions, central credit societies, co-operative wholesales and co-operative insurance companies. In several provinces the surplus funds of both local and wholesale co-operatives are deposited with a central credit society.

Fishermen's Co-operatives

Fishermen's co-operatives operate in all provinces. In 1961 there were 80 such organizations, with 9,000 members. They sold $17-million worth of fish and $4-million worth of supplies. There are four federations of fishermen's co-operatives: United Maritime Fishermen, Quebec United Fishermen, Ontario Fishermen's Federation and Saskatchewan Co-operative Fisheries Limited.

In British Columbia all fishermen are eligible for membership in one large central co-operative, the Prince Rupert Fishermen's Co-operative Association. This association operates fish-processing plants in Prince Rupert and Vancouver, as well as a fishermen's supply business and super-market in Prince Rupert. British Columbia fishermen also have co-operative credit and insurance plans.

Service Co-operatives

These co-operatives provide insurance, electricity, housing and other services including water, transportation, telephone and machinery.

Co-operative insurance companies are active in all provinces. They handle life, automobile, fire, hail, general casualty, fidelity and medical insurance.

At the time of their founding, some of the mutual insurance companies were similar to co-operatives in principle. Statutory provisions governing life-insurance companies in Canada make it very difficult to maintain democratic policy-holder control in a large insurance firm. Some of the smaller mutuals, especially in the farm fire insurance field, operate like co-operatives.

The Co-operative Life Insurance Company, originally a provincial company in Saskatchewan, was incorporated under federal legislation in 1947. It operates in all provinces except Quebec. L'Assurance vie Desjardins Ltée, another co-operative, was organized in Quebec by the caisses populaires in 1948. It now has a federal charter and operates in several provinces. There are also some fraternal and mutual insurance societies that are considered to be co-operatives.

In Ontario, Co-operators Insurance Association has offered automobile and casualty insurance since 1949. A companion company, Co-operators Life Insurance Association, was established in Ontario in 1959.

The Co-operative Fire and Casualty Company, incorporated in 1952 under a special act of the Parliament of Canada, has offices in the four Atlantic and the four Western provinces.

About 46 medical insurance co-operatives were functioning in Canada in 1961. Originally hospitalization was the chief benefit to the members. The entry of the federal and provincial governments into hospitalization insurance has changed the role of these co-operatives, but they continue to provide general medical insurance.

Rural electrification of Alberta, and to a lesser extent of Quebec, is financed largely through co-operatives. These electrification co-operatives organize the farmers of a community to obtain electric services for their farms. In Alberta, when the necessary membership is obtained by a new electrification co-operative, it contracts with a utility company serving the area to build and maintain power lines and provide power. The power company bills the co-operative for construction at cost. The co-operative has access to long-term, government-guaranteed loans to pay for the power line. Each member contracts with the co-operative to pay his share of the loan during its term. These co-operatives have, within the past 15 years, brought electricity to more than than 56,000 Alberta farms, over 80 per cent of the farms in the province. Private companies a few years ago considered rural electrification in Alberta too costly to undertake.

Housing co-operatives have developed mainly in Newfoundland, Nova Scotia, Quebec and Ontario. Co-operative housing projects are eligible for loans under the National Housing Act. Credit unions, co-operative credit societies and co-operative insurance companies help finance some of these projects.

Credit Unions

Credit unions and caisses populaires assemble savings of the common people to meet their credit needs. The Rustico Farmer's Bank, chartered in Prince Edward Island in 1864, was a forerunner of these credit organizations.

Alphonse Desjardins organized the first caisse populaire at Lévis, Quebec, in 1900. He organized two others in the province before the Co-operative Syndicates Act. This act which provides the legal basis for this type of organization was passed in 1906. By 1930 there were many caisses populaires in Quebec. Other provinces lacked legislation governing the incorporation and supervision of caisses populaires, so that only a few were organized and most of these failed.

The caisse populaire idea spread to the United States. There it was modified to form credit unions, which met the needs of industrial workers. The caisse populaire uses the parish as a common bond of association. In the industrial credit union, employment at a given plant or group of plants is the common bond. This makes possible credit union membership to many people who are not part of closely-knit parishes.

Interest in credit unions increased during the depression of the 1930's. In Nova Scotia, the organization of credit unions was encouraged with considerable success by extension workers of St. Francis Xavier University.

Management of industrial firms across Canada began to see the potential of credit unions in helping their employees. In a few years, appropriate legislation was adopted in all provinces. The credit-union movement entered a phase of rapid growth which still continues. Credit unions and caisses populaires now have more members and more assets than all other types of co-operatives. In 1961 there were 4,697 credit unions with 2,751,059 members and total assets of $1.5 billion. The Province of Quebec, still leading, has a third of all the credit unions, half of the total membership and about 60 per cent of the assets.

Central credit unions have been formed in all provinces. These act as depositaries for the surplus funds of their member locals, and lend money to their members and in some cases to other co-operative organizations. Membership of the centrals is composed chiefly of local credit unions, but in some provinces the central includes co-operatives and is called a co-operative credit society. There were 27 central credit unions and co-operative credit societies in Canada in 1961. Some of these served a small region, others whole provinces. Their total assets were $208 million, including investments and loans to members of $148 million. Members' deposits with the centrals were $153 million.

The Canadian Co-operative Credit Society, organized in 1953, operates on the national level as a central credit organization for the co-operative movement. Its members include both provincial co-operative credit societies, or central credit unions, and co-operative wholesales.

Supervision and Direction

Co-operative wholesales provide certain supervisory services to local associations. Some have qualified auditors doing continuous audit for local co-operatives and making regular reports to boards of directors. They also help local co-operatives with their income tax returns. The business affairs of some are managed under the direction of the wholesale.

Nearly all Canadian co-operatives are incorporated under provincial authority. There is no general federal co-operative legislation. However, a few co-operatives that operate in more than one province have been set up under the Dominion Companies Act or special acts. There are ordinances governing organization of co-operatives in the Yukon and Northwest Territories.

The extent of supervision and guidance offered to co-operatives varies from province to province. In some, the only government service for most types of co-operatives is to ensure that they are properly incorporated and that the correct legal procedures are followed in amalgamations and dissolutions. In others, the registrar of co-operative associations has a small staff who assist co-operatives during organization and provide advisory services. The Saskatchewan government has a special department to deal with co-operative matters; the provision of inspection and advisory services is among its main functions.

There is more supervision of credit unions than of other co-operatives. In most provinces each credit union is inspected by a government representative about once a year. In Ontario, Credit Union League fieldmen do about half of this inspection work. In Quebec, central credit unions are responsible for all inspection work. They receive grants from the provincial government to do this. The inspector checks to see that the credit union is complying with the act and bylaws; he also looks for unsound management practices and other flaws that may impair the financial soundness of the credit union.

Co-operatives in Canada are generally subject to the same taxes as other business firms. However, they do not have to pay federal income tax during their first three years of operation. Under the Income Tax Act, patronage dividends paid by a business firm may, subject to certain restrictions, be deducted in computing incomes for income tax purposes. Credit unions are exempt from income tax.

Education

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. The Co-operative Union of Canada, which celebrated its fiftieth anniversary in 1959, concentrates its efforts in English-speaking areas. Le Conseil Canadien de la Coopération serves the co-operatives in the areas where the French language predominates. Both are members of the International Co-operative Alliance, with headquarters in London, England.

Eight provincial co-operative unions are members of the Co-operative Union of Canada. Membership also includes interprovincial co-operative credit, manufacturing, marketing and insurance societies. The Credit Union National Association, Co-operative Wholesale Society of Great Britain and Scottish Co-operative Wholesale Society are affiliate members.

A few Canadian universities offer courses on co-operatives and some conduct extension work in this field. None of the others, however, has as extensive a programme as St. Francis Xavier University in Antigonish, Nova Scotia. Since the early 1930's, this university has carried on extension work in the Maritime Provinces to organize and assist co-operatives. In more recent years a variety of courses has been developed to train people in co-operation. Some of these are short courses for directors and managers of existing co-operatives and credit unions; others are offered as an integral part of university work. In addition, special courses are offered for visitors from other countries who wish to learn about co-operatives in Canada. The Coady International Institute was set up at St. Francis Xavier University in 1960 to train students from abroad.

To provide training for employees of co-operatives, the Co-operative Institute was established in Saskatoon, Saskatchewan, in 1955, under the sponsorship of Federated Co-operatives Limited. It has concentrated on short courses, often only one or two weeks long, for co-operative directors, managers

and employees. In 1959, with support from co-operatives in the four Western provinces, the Co-operative Institute was reorganized as Western Co-operative College. The construction of the college buildings, which are to include two residences (each housing 20 students), was begun in 1961 in Saskatoon.

The large co-operatives also conduct educational programmes to strengthen their own organization and to stimulate interest in forming new co-operatives. The work of the Saskatchewan Wheat Pool in this field is especially important; it has operated a broad educational programme for many years.

A number of the larger co-operatives either publish or sponsor the publication of periodicals. Six of the larger publications, one in French, are bimonthly; others, in both languages, appear monthly. A digest of co-operative news and information of general interest is issued quarterly. One weekly newspaper of general interest and one farm magazine are also sponsored by large co-operatives.

Taxation

Under Section 73 of the Income Tax Act, a corporation, incorporated under provincial legislation respecting co-operative associations for marketing, purchasing or service, is exempt from taxation for its first three taxation years.

To qualify for this exemption co-operatives must comply with certain additional provisions:

1) The charter, by-laws or contract, with members or customers, must hold forth the prospect that patronage dividends will be paid.

2) No member may have more than one vote in the conduct of the affairs of the co-operative.

3) At least 90 per cent of the members must be individuals and at least 90 per cent of the shares, if any, must be held by individuals.

4) The rate of interest on member capital, or dividends on shares, must not exceed 5 per cent.

5) Non-member business must not exceed 20 per cent of the total business.

6) The co-operative must not be a continuation of a previous business in which many of the members had a substantial interest.

All Canadian co-operatives must file income-tax returns, whether they are subject to tax or not.

Under Section 75 of the Income Tax Act, patronage dividends paid by any business co-operative or otherwise are allowable as a deduction in computing taxable income. In order to claim this reduction, a firm must have "held forth prospect" of paying patronage refunds and this prospect must have been announced prior to the taxation year by an advertisement in a newspaper, by contracts, or explicitly set forth in the charter, by-laws, articles of association or the act under which they were incorporated or registered.

The co-operative must, within 12 months after the taxation year, allocate the refund to all customers at the same rate except for non-members, who may be credited with a different rate. There may be different rates also for different commodities.

Payment of refunds must be made within the taxation year or within 12 months afterwards, to be deductible in the taxation year. Otherwise such payments are deductible when paid. Payment includes the following five methods:

1) By cash.

2) By certificates of indebtedness or issue of shares of capital stock, provided an amount of money equal to the certificates or shares issued has been disbursed in redeeming previous issues.

3) By applying the refund against a debt of the customer, providing the co-operative has statutory or written authority from the customer to do so.

4) By retention by the co-operative as a loan from a member, providing the member or customer has given a written authority to the co-operative for this purpose.

5) By applying the refund on account of a loan or purchase of shares pursuant to a by-law that requires the member to make a loan or purchase shares and authorizes the application of the patronage dividend thereon, if the statute under which the co-operative is constituted provides that all by-laws of the co-operative are binding on all members.

There are, however, limitations on the amount of refund allowable as a deduction from income. A co-operative, having complied with the requirements set forth above, cannot claim as an allowance a refund to members greater than the income arising from member business. All refunds paid to non-members may be deducted from income.

Furthermore, the amount of refund cannot reduce the taxable income below 3 per cent of the capital employed in the business, with the exception that such capital includes all borrowed money other than money borrowed from chartered banks and credit unions. However, the 3 percent capital employed may be reduced by interest paid on money borrowed from sources other than chartered banks and credit unions.

Table 1.- Marketing and Purchasing Co-operatives in Canada, 1932-1961.

Crop Year ended	Associations	Total Business including other Revenues	Marketing	Purchasing
	- Number -	-$ 000 -		
1932	795	145,303	134,611	10,665
1935	697	130,384	120,853	9,241
1940	1,151	236,322	214,293	21,129
1945	1,824	585,650	500,481	81,360
1950	2,495	1,015,264	803,639	206,082
1955	1,949	941,377	704,047	228,446
1960	1,934	1,368,625	972,333	365,744
1961 1/	1,906	1,424,308	1,017,750	388,022

1/ Exclusive of sales of produce and supplies by service and fishermen's associations.

Table 2.- Farm Products marketed by Co-operatives in Canada, 1961.

	-$ 000 -
Grain and Seed	427,190
Livestock and Livestock Products	270,377
Dairy Products	228,550
Fruits and Vegetables	33,103
Eggs and Poultry	44,255
All Others	14,275
Total	1,017,750

Table 3.- Merchandise and Supplies sold through Co-operatives in Canada, 1961.

	- $ 000 -
Feed, Fertilizer and Spray Material	122,103
Food Products	106,049
Petroleum Products and Auto Accessories	69,986
Hardware	26,056
All Others	63,828
Total	388,022

Table 4.- Credit Unions in Canada, 1920-1961

Year	Number Chartered	Members	Assets
	- number -		- million dollars -
1920	113	31,752	6
1925	122	33,279	8
1930	179	45,767	11
1935	277	52,045	10
1940	1,167	201,137	25
1945	2,219	590,794	146
1950	2,965	1,036,175	312
1955	4,100	1,731,328	653
1960	4,608	2,553,951	1,299
1961	4,697	2,751,059	1,509

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CO-OPERATIVE BUSINESS IN CANADA

(Prepared in the Economics Branch,
Department of Agriculture, Ottawa)

The pioneers in most parts of Canada had to co-operate simply to survive. Much of this co-operation was informal, as in barn-raising bees, the exchange of labor, and assistance to neighbors in difficulties.

The pioneers developed business organizations that had some co-operative aspects. Meanwhile, in England, weavers at Rochdale and others were developing the basic principles for co-operative business. These include:

(1) Voluntary membership (all who can benefit from the service may join);

(2) democratic control (each member has only one vote);

(3) limited rate of interest on capital, if any;

(4) distribution of surplus or savings on the basis of patronage.

Beginnings

A co-operative store was opened by coal-miners in Stellarton, Nova Scotia, in 1861, and at least nine more followed in other Nova Scotia communities before 1900. None of these survived after the First World War. The British Canadian Co-operative Society at Sydney Mines, organized in 1906, is the oldest co-operative for the purchasing of consumer goods in Canada, and one of the most successful.

In Quebec, development of the co-operative movement began with the formation of a farmers' mutual fire-insurance company in 1852. Co-operative insurance soon spread to the life-insurance field, the first fraternal society being formed in 1863. Mutual fire-insurance and fraternal societies continue to be important types of co-operative in Quebec and have spread to other provinces.

Another early development in Quebec was the organization of La Caisse Populaire de Lévis by Alphonse Desjardins in 1900. This was the first of the co-operative credit and savings institutions that now play an important role in the Canadian economy. The first farmers' co-operative trading organization in this province was formed in 1915, and a fishermen's co-operative was organized in 1923.

A Canadian farmers' organization, the Dominion Grange, was granted a federal charter in 1877. It was formed from branches of the American Grange in Ontario and Quebec. At its peak, the Grange had 31,000 members, of whom 26,000 were in Ontario, where for 38 years they operated a salt-manufacturing company. The Grange also went into the fire-insurance business for 22 years and, in 1879, started a banking operation that lasted seven years. The Grange eventually united with another farmers' organization.

About 1890, the Patron of Industry organization came to Canada from Michigan; it handled binder twine for farmers on a co-operative basis.

Agriculture in the Prairie Provinces began to develop rapidly about 1890. The early settlers were thus encouraged to try to establish better marketing facilities. The beginnings of the co-operative movement in this part of Canada were made by organizations formed by these farmers.

The federal Department of Agriculture helped farmers in the territories that are now Saskatchewan and Alberta to form co-operative creameries during the 1890s and early 1900s. These provided marketing facilities for cream in communities where there had been none before. Another early co-operative creamery was established in the Duncan area of Vancouver Island in 1896.

There was much dissatisfaction among the Prairie pioneers about the marketing of grain. In the early 1900s, the Territorial Grain Growers Association and the Manitoba Grain Growers Association were formed. While some progress was made in obtaining relief through regulatory legislation, these organizations soon decided that co-operative marketing was the real solution, and the Grain Growers Grain Company was organized in 1906. Some farmer-owned local elevator companies had been formed before this date.

Province-wide co-operative elevator companies were well established in each of the three Prairie Provinces by 1913. The United Grain Growers Ltd. was formed in 1917 by the amalgamation of two of these - the Grain Growers' Grain Company in Manitoba and the Alberta Farmers' Co-operative Elevator Company.

Although some of the early co-operatives survived and are still in existence, many of them either failed or evolved into joint-stock companies. They were handicapped by lack of appropriate legislation dealing with their incorporation and operation. Manitoba enacted the first provincial co-operative act in 1887, and Quebec followed in 1906. In 1908, a federal bill for the incorporation of co-operatives passed the House of Commons, only to be rejected by the Senate. In subsequent years provincial co-operative legislation became general.

Meanwhile, the need for some common association among co-operatives was felt. A small group of leaders therefore met in Hamilton on March 6, 1909, to form the Co-operative Union of Canada, which became a co-ordinating and educational body.

Growth

The co-operative movement in Canada expanded rapidly during the first 15 years of this century. In addition to the co-operative grain-elevator companies, numerous small purchasing and marketing co-operatives were formed. However, many of these could not cope with the rapid changes in price levels that occurred between 1916 and 1924 and failed during that period.

Meanwhile, the farmers of Western Canada, having already built a system of co-operative grain-elevators and creameries, developed a keen interest in the pooling principle, whereby they could receive average annual prices for their produce rather than the prevailing market price on delivery date. Pooling was particularly attractive in the marketing of cereal grains, as farmers usually delivered most of their grain during the autumn, when prices were often at their lowest. By 1925, Prairie farmers had organized three large pools, which handled about half the grain marketed in the Prairie Provinces. A number of other pools organized during the 1920s followed the pattern set by the grain pools.

The severe depression that began in 1929 gave rise to difficult problems for many marketing co-operatives. Prices of agricultural products held a downward trend for over three years and eventually stabilized at extremely low levels. This led to the failure of a number of the weaker co-operatives and imperilled even the strong ones. For example, Saskatchewan Co-operative Creameries Ltd. went bankrupt but was later reorganized. The grain pools made payments at time of delivery that were expected to be substantially below the final price. In the 1929-30 crop year, prices fell so rapidly that these initial payments proved to be much higher than prices realized when the grain was sold. Government-guaranteed loans tided the three pools over the crisis.

It was now established that even large pooling co-operatives could not stabilize the prices of Canadian grain. The Canadian Wheat Board was formed to assist in this stabilization. It operates pools for marketing the grain of the Prairie Provinces. The Western grain co-operatives, as agents for the Canadian Wheat Board, assemble and store over half the grain harvested in the Prairie Provinces.

Despite all the setbacks during the depression, farmers continued to give their support to co-operatives, so that the basic strength of the movement was unimpaired. Indeed, the 1930s brought a revival of interest in co-operative purchasing. The grain-marketing co-operatives, especially the Saskatchewan Wheat Pool, assisted farmers in organizing new co-operatives. With lower prices for farm products, savings on the purchase of farm supplies became more important. For example, in the Prairie Provinces the mechanization of agriculture led to special interest in savings on the cost of petroleum. A small group

of farmers organized Consumers Co-operative Refineries Ltd. in 1935 and built the first co-operative oil-refinery in the world. This was the beginning of an upsurge in co-operative purchasing in Canada, which continues to this day.

Marketing and Purchasing Co-operatives

The total volume of business of 1,495 marketing and purchasing co-operatives amounted to $1,775 million in 1965, the second highest on record.[1] Although most items showed an increase over 1964, the record year, the total was down slightly owing to a reduction in export sales of wheat from the unusually high level reached in 1964. The volume of business in 1965 represented a twelvefold increase over 1932, the first year co-operative statistics were tabulated. However, the number of co-operatives in 1965, while almost double the 1932 figure, has been steadily declining since the peak year 1950, reflecting the trend of consolidation into larger units. Marketing of farm products accounted for 68 per cent of total volume in 1965, distribution of farm supplies and consumer goods (purchasing) 31 per cent and service revenue and miscellaneous income 1 per cent.

Grain and seeds is the largest category of commodities marketed by co-operatives in Canada and represented 48 per cent of total marketings in 1965, followed by dairy products, 25 per cent, and livestock and livestock products, 18 per cent.[2] Grains and seeds and livestock and livestock products are marketed chiefly in the Prairie Provinces.

Dairy products are handled in all provinces except Newfoundland, with the heaviest concentration in Ontario and Quebec, which together accounted for 54 per cent of the total in 1965.

Farm supplies accounted for the greater part of Canadian co-operative purchases of $549 million in 1965. The co-operative purchasing of feed is particularly important in Ontario, Quebec and British Columbia, as much of it is shipped in from the Prairies. Petroleum products are the main commodities purchased co-operatively in the Prairie Provinces because so much power machinery is used.[3]

Co-operative purchasing of some consumer items, especially food, is also large. Even these items are sold mainly to rural people, though in Western Canada co-operative supermarkets now serve large numbers of urban people. A number of these city co-operatives were organized by farmers and gradually gained urban support.

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[1] See Table 1.

[2] See Table 2.

[3] See Table 3.

Some co-operatives, especially in Ontario and the other eastern provinces, market a variety of agricultural products and also purchase farm supplies. These, and the purchasing co-operatives, are generally local organizations serving farmers near one trading centre.

A large part of the co-operative marketing in Canada is carried out by province-wide organizations. Each of these assembles, stores and sells a few closely-related commodities; some of them, including most dairy-product and poultry-marketing co-operatives, process as well. Most of the grain and livestock marketed through co-operatives is processed by other firms, though some co-operatives do their own. For example, the Saskatchewan Wheat Pool operates a flour-mill, and much of the livestock marketed in Quebec is processed in the packing plants of La Coopérative Fédérée. There are also single co-operative abattoirs in Nova Scotia, Ontario and Manitoba. Likewise, honey, oilseeds, maple syrup, fruits and vegetables are processed in some co-operative plants.

A few marketing and purchasing co-operatives operate on an inter-provincial basis. The United Grain Growers Limited has elevators throughout Western Canada and terminals on the Great Lakes and at Vancouver. Canadian Co-operative Wheat Producers Limited represents the three provincial wheat pools. Through it, the three member wheat pools consider programmes and policies common to each of them and to the many thousands of grain producers in the Prairie Provinces.

Canadian Co-operative Implements Limited is an independent, farmer-owned association with its head office in Winnipeg. It was set up in 1940 to manufacture and distribute farm machinery. Its membership extends over the Prairie Provinces and northwestern Ontario. Sales of machinery by the company in 1965 were $20.3 million.

Canadian Co-operative Wool Growers Limited operates on a national basis. It has handled almost 70 per cent of the wool going through government-registered stations during the past ten years.

Co-operative Wholesales

Nearly all of the co-operatives that purchase farm supplies and consumer goods for their members are affiliated with one or more of the eight co-operative wholesales in Canada. The wholesales provide the affiliated co-operatives with a wide range of goods, but they do not yet meet all the requirements. Some of the wholesales are also central marketing agencies for farm products. The total assets of the eight wholesales and those of Interprovincial Co-operatives Limited exceeded $146 million in 1965. Sales of $413 million were more than two and a half times those of 1955.

Over 85 per cent of the total business of the regional wholesales was reported by the three largest - La Coopérative Fédérée de Québec, United Co-operatives of Ontario and Federated Co-operatives Limited in the Prairie Provinces.

La Coopérative Fédérée, with a turnover exceeding $125 million annually, is one of the mainstays of agriculture in Quebec. It operates a number of abattoirs, and through contract arrangements with poultry and hog producers has established an integrated programme of production. It is a major supplier of agricultural feeds, fertilizers, petroleum products and some types of machinery.

In addition to distributing farm supplies, petroleum and equipment, United Co-operatives of Ontario manufactures feeds and fertilizers. It also markets livestock and grain. Formerly, UCO marketed dairy and poultry products, but most of this type of business was transferred to a new co-operative, the United Dairy and Poultry Co-operative Limited, organized in 1958. Nevertheless, UCO operates a poultry-processing plant and contracts with producers for its supply of broilers and turkeys.

Federated Co-operatives Limited provides consumer goods, petroleum products, fertilizers and other farm supplies to local co-operatives throughout Alberta, Saskatchewan, Manitoba and part of northwestern Ontario. This co-operative was originally formed by amalgamation of the Saskatchewan Co-operative Wholesale Society and Consumers Co-operative Refineries Ltd. It has spread from Saskatchewan to other provinces by amalgamation with the co-operative wholesales serving those areas.

The provincial and regional wholesales in 1940 formed Interprovincial Co-operatives Limited. This central agency co-ordinates the purchases of certain food products, household appliances and farm supplies by consolidating the buying. The co-operative operates a chemical plant in Manitoba, a food plant in British Columbia and a herbicide plant in Saskatchewan. It has control of the "Co-op" label, which is used only on high-standard co-operative products. Sales of "Co-op" products are increasing year by year.

Western Co-operative Fertilizers, organized on a partnership basis by Federated Co-operatives and the Alberta and Saskatchewan wheat pools to supply the fertilizer needs of co-operative members in the Western provinces, was incorporated in February 1964. The plant was built on a 320-acre site near Calgary, Alberta, with an annual production capacity of 225,000 tons and space for future expansion. Its total output was to go to the three partner-members for distribution to local co-operatives. The new plant was officially opened in October 1965 and went into full-scale production a few months later.

Several Canadian co-operatives are members of co-operatives in the United States. The business activities of these organizations include a milking-machine factory, fertilizer plants and other plants for farm supplies in the United States.

Financial Structure

Although the proportion of agricultural products sold through co-operatives has changed little for some years, co-operative buying of farm supplies and consumer goods has continued to expand. This growth has accompanied a rapid increase in the total assets of the co-operative movement. In 1965, marketing and

purchasing co-operatives had total assets of $762 million, compared to $419 million in 1955. In addition, the wholesales had assets of $146 million in 1965, of which $54 million was provided by their member co-operatives.

At least 45 per cent of the capital of these co-operatives was provided by the members. Their equity in the total assets ($762 million) was reported at $345 million in 1965. However, the reported members' equity does not include money lent either directly or through co-operative agencies by members of one co-operative to other co-operatives -- a sum that may now be substantial. In recent years some co-operatives, especially the wholesales, have offered debentures and other securities for sale to the general public; but it is likely that most of these have been bought by co-operatives or their members.

Local marketing and purchasing co-operatives may get loans from credit unions, central credit societies, co-operative wholesales and co-operative insurance companies. In several provinces the surplus funds of both local and wholesale co-operatives are deposited with a central credit society.

Fishermen's Co-operatives

Fishermen's co-operatives operate in all provinces. In 1965 there were 91 such organizations, with 11,000 members, which sold $25-million worth of fish and $5-million worth of supplies. There are three federations of fishermen's co-operatives: United Maritime Fishermen, Quebec United Fishermen, and Saskatchewan Co-operative Fisheries Limited.

In British Columbia all fishermen are eligible for membership in one large central co-operative, the Prince Rupert Fishermen's Co-operative Association. This association operates fish-processing plants in Prince Rupert and Vancouver, as well as a fishermen's supply business in Prince Rupert. British Columbia fishermen also have co-operative credit and insurance plans.

Service Co-operatives

These co-operatives provide insurance, electricity, housing and other services including water, transportation, cold storage and seed-cleaning.

Co-operative insurance companies are active in all provinces. They handle life, automobile, fire, hail, general casualty, fidelity and medical insurance.

At the time of their founding, some of the mutual insurance companies were similar to co-operatives in principle. Statutory provisions governing life-insurance companies in Canada make it very difficult to maintain democratic policy-holder control in a large insurance firm. Some of the smaller mutuals, especially in the farm-fire insurance field, operate like co-operatives.

About 50 medical-insurance co-operatives were functioning in Canada in 1965. Originally, hospitalization was the chief benefit to the members. The entry of the federal and provincial governments into hospitalization insurance has changed the role of these co-operatives, but they continue to provide general medical insurance.

The electrification of rural Alberta is financed largely through co-operatives that organize the farmers of a community to obtain electric services for their farms. In Alberta, when the necessary membership is obtained by a new electrification co-operative, it contracts with a utility company serving the area to build and maintain power-lines and provide power. The power company bills the co-operative for construction at cost. The co-operative has access to long-term, government-guaranteed loans to pay for the power-line. Each member contracts with the co-operative to pay his share of the loan during its term. These co-operatives, organized within the past 20 years, bring electricity to more than 60,000 Alberta farms, over 80 per cent of the provincial total. Private companies had considered rural electrification in Alberta too costly to undertake.

Housing co-operatives have developed mainly in Newfoundland, Nova Scotia, Quebec, Ontario, Manitoba and Saskatchewan. Co-operative housing projects are eligible for loans under the National Housing Act. Credit unions, co-operative credit societies and co-operative insurance companies help finance some of these projects.

Service co-operatives reporting for 1965 (excluding insurance co-operatives other than medical insurance co-operatives) numbered 664, with a membership of 264,000, business revenue of $30 million and assets of $95 million.

Production Co-operatives

This group of societies includes co-operative farms, wood producers' co-operatives, grazing, feeder, artificial-insemination and machinery co-operatives. In 1965, the volume of business amounted to $16 million for 365 production co-operatives with 33,000 members and $12 million of assets.

Co-operatives in the North

The Co-operative Development Programme, which was started in the Canadian North in 1959, has met with the interest of the local people. On April 1, 1966, there were 22 co-operatives in operation in the Northwest Territories and northern Quebec. Another eight groups are at present in the formative stage.

The total sales of these co-operatives are now in excess of $1 million, with some of the individual co-operatives at the $100,000 level. While Arctic co-operatives were heavily dependent on outside capital for their initial development, members' equity in total assets now exceeds outstanding debt by some $300,000.

The social impact these co-operatives have made in helping the people to recognize more fully the importance of their role in their own affairs has been at least equally significant to the economic benefits achieved.

Apart from the Department of Indian Affairs and Northern Development, the governments of the Province of Quebec and the Northwest Territories are now active in providing assistance to a number of co-operative developments in northern Quebec and the Territories respectively. The Co-operative Union of Canada and the Conseil de la Co-opération du Québec are also participants in the northern co-operative development.

Credit Unions and Caisses Populaires

Credit unions and caisses populaires assemble savings of the people to meet their credit needs. The Rustico Farmer's Bank, chartered in Prince Edward Island in 1864, was a forerunner of these credit organizations.

Alphonse Desjardins organized the first caisse populaire at Lévis, Quebec, in 1900. He organized two others before the passing of an act which provided the legal basis for this type of organization in 1906. By 1930 there were many caisses populaires in Quebec. Other provinces lacked legislation governing the incorporation and supervision of caisses populaires, so that only a few were organized and most of these failed.

The caisse populaire idea spread to the United States. There it was modified to form credit unions, which met the needs of industrial workers. The caisse populaire uses the parish as a common bond of association. In the industrial credit union, employment at a given plant or group of plants is the common bond. This makes possible credit union membership to many people who are not part of closely-knit parishes.

Interest in credit unions increased during the depression of the 1930s. In Nova Scotia, the organization of credit unions was encouraged with considerable success by extension workers of St. Francis Xavier University.

Management of industrial firms across Canada began to see the potential of credit unions in helping their employees. In a few years, appropriate legislation was adopted in all provinces. The credit-union movement entered a phase of rapid growth which still continues. Credit unions and caisses populaires now have more members and more assets than all other types of co-operative. In 1965, 4,939 credit unions with 3.7 million members and total assets of $2.5 billion made loans to their members of $1.1 billion.[4] The Province of Quebec, still leading, has a third of all the societies, half of the total membership and about 55 per cent of the assets.

Central credit unions and caisses populaires have been formed in all provinces. These act as depositaries for the surplus funds of their member locals, and lend money to their members and, in some cases, to other co-operative organizations. Membership of the centrals is composed chiefly of local societies, but in some provinces the central includes co-operatives and is called a co-operative credit society. There were 28 central societies in Canada in 1965. Some of these served a small region, others whole provinces. Their total assets were $357 million, including investments of $176 million and loans to members of $123 million. Members' deposits with the centrals totalled $256 million. The centrals made loans to their members during the year of $221 million.

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[4] See Table 4.

The Canadian Co-operative Credit Society, organized in 1953, operates on the national level as a central credit organization for the co-operative movement. Its members include both provincial co-operative credit societies, or central credit unions, and co-operative wholesales.

There were two co-operatives trust companies operating in Canada as of 1965. These trusts provide on a co-operative basis the kind of service generally offered by trust companies, such as administration of estates, corporate and other trusteeships, mortgage loans and guaranteed deposits. At the end of 1965, the Co-operative Trust Company Limited in Saskatchewan reported total assets of $26 million and trust loans outstanding of $10 million, while the Quebec Trust Company, an affiliate of La Fédération des Caisses Populaires Desjardins, showed total assets of $31 million, investments of $25 million and mortgages outstanding of $5 million.

Landmark Credit Limited and Landmark Savings and Loan Association, two affiliated organizations incorporated in 1962 and 1965 respectively in Ontario to provide first and second mortgages to credit-union members, had combined total assets of $3 million and loans outstanding of $2.7 million at the end of 1965.

Supervision and Direction

Co-operative wholesales provide certain supervisory services to local associations. Some have qualified auditors doing continuous audit for local co-operatives and making regular reports to boards of directors. They also help local co-operatives with their income-tax returns. The business affairs of some are managed under the direction of the wholesale.

Nearly all Canadian co-operatives are incorporated under provincial authority. There is not yet any general federal co-operative legislation. However, a few co-operatives that operate in more than one province have been set up under the Canada Corporations Act or special acts. There are ordinances governing organization of co-operatives in the Yukon and Northwest Territories.

The extent of supervision and guidance offered to co-operatives varies from province to province. In some, the only government service for most types of co-operative is to ensure that they are properly incorporated and that the correct legal procedures are followed in amalgamations and dissolutions. In others, the registrar of co-operative associations has a small staff which assists co-operatives during organization and provides advisory services. The Saskatchewan government has a special department to deal with co-operative matters; the provision of inspection and advisory services is among its main functions.

There is more supervision of credit unions and caisses populaires than of other co-operatives. In most provinces each society is inspected by a government representative once a year. In Ontario, Credit Union League fieldmen do about half this inspection work. In Quebec, centrals are responsible for all inspection work, for which they receive grants from the provincial government.

The inspector checks to see that the credit union is complying with the act and bylaws; he also looks for unsound management practices and other flaws that may impair the financial soundness of the credit union.

Co-operatives in Canada are generally subject to the same taxes as other business firms. However, they do not have to pay federal income tax during their first three years of operation. Under the Income Tax Act, patronage dividends paid by a business firm may, subject to certain restrictions, be deducted in computing incomes for income tax purposes. Credit unions are exempt from income tax.

Education

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. The Co-operative Union of Canada, which celebrated its fiftieth anniversary in 1959, concentrates its efforts in English-speaking areas. Le Conseil Canadien de la Coopération serves co-operatives in the areas where the French language predominates. Both are members of the International Co-operative Alliance, with headquarters in London, England.

Membership in the Co-operative Union of Canada includes 27 co-operative societies and provincial co-operative unions, the Credit Union National Association, the Co-operative Wholesale Society of Great Britain and the Scottish Co-operative Wholesale Society.

A few Canadian universities offer courses on co-operatives and some conduct extension work in this field. None of the others, however, has as extensive a programme as St. Francis Xavier University in Antigonish, Nova Scotia. Since the early 1930s, this university has carried on extension work in the Maritime Provinces[5] to organize and assist co-operatives. In more recent years a variety of courses has been developed to train people in co-operation. Some of these are short courses for directors and managers of existing co-operatives and credit unions; others are offered as an integral part of university work. In addition, special courses are offered for visitors from other countries who wish to learn about co-operatives in Canada. The Coady International Institute was set up at St. Francis Xavier University in 1960 to train students from abroad.

To provide training for employees of co-operatives, the Co-operative Institute was established in Saskatoon, Saskatchewan, in 1955, under the sponsorship of Federated Co-operatives Limited. It has concentrated on short courses, often of only one or two weeks duration, for co-operative directors, managers and employees. In 1959, with support from co-operatives in the four Western provinces, the Co-operative Institute was reorganized as Western Co-operative College. College buildings, including residences, were constructed in 1962 and additional residences were built in 1965, which provide accommodations for 84 students.

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[5] Since the entry of Newfoundland into Confederation in 1949, the extension work of St. Francis Xavier University has covered the four Atlantic Provinces.

In Quebec, the insurance and finance co-operatives founded the Institut Coopératif Desjardins in 1963. The Institut specializes in social leadership and adult education for Quebec co-operators and foreign students.

The large co-operatives also conduct educational programmes to strengthen their own organizations and to stimulate interest in forming new co-operatives. The work of the Saskatchewan Wheat Pool in this field is especially important; it has operated a broad educational programme for many years.

A number of the larger co-operatives either publish or sponsor the publication of periodicals. Six of the larger publications, one in French, are bimonthly; others, in both languages, appear monthly. A digest of co-operative news and information of general interest is issued quarterly. One weekly newspaper of general interest and one farm magazine are also sponsored by large co-operatives.

External Aid Office

The co-operative idea has been found most appropriate for many of the social and economic needs of developing countries, and Canada is helping meet their training requirements by sponsoring study programmes at Canadian institutions and colleges which provide courses related to the co-operative field. A variety of courses have been organized. The object of this training is to prepare leaders and managers who will actively engage in co-operative work when they return home. By the end of 1966, the External Aid Office had placed 80 students for the year. It was expected that 120 would be accommodated during 1967. Apart from the formal programmes which are organized, individuals are often provided with special arrangements where this is necessary to meet the urgent needs of a particular country. Also, Canadian technical advisers serve overseas to assist in various co-operative enterprises.

A variety of programmes are scheduled each year with many co-operative schools and societies which conduct this training in Canada. Considerable flexibility is made possible by this variety, as certain groups of students will require either more or less practical training, as against academic preparation, than other groups. In addition to the several courses offered on the principles and techniques of co-operative operations, purchasing, management, and credit union organization, students are attached for various periods to co-operative societies for practical experience and observation.

It is expected that increasing numbers of students will be trained in Canada in future. Canada has excellent resources of co-operative experience on which to draw, and overseas interest in this kind of developmental assistance is growing.

Taxation

Under Section 73 of the Income Tax Act, a corporation, incorporated under provincial legislation respecting co-operative associations for marketing, purchasing or service, is exempt from taxation for its first three taxation years.

To qualify for this exemption, co-operatives must comply with certain additional provisions:

1) The charter, by-laws or contract, with members or customers, must hold forth the prospect that patronage dividends will be paid.

2) No member may have more than one vote in the conduct of the affairs of the co-operative.

3) At least 90 per cent of the members must be individuals and at least 90 per cent of the shares, if any, must be held by individuals.

4) The rate of interest on member capital, or dividends on share, must not exceed 5 per cent.

5) Non-member business must not exceed 20 per cent of the total business.

6) The co-operative must not be a continuation of a previous business in which many of the members had a substantial interest.

All Canadian co-operatives must file income-tax returns, whether they are subject to tax or not.

Under Section 75 of the Income Tax Act, patronage dividends paid by any business, co-operative or otherwise, are allowable as a deduction in computing taxable income. In order to claim this reduction, a firm must have "held forth prospect" of paying patronage refunds and this prospect must have been announced prior to the taxation year by an advertisement in a newspaper, by contracts, or explicitly set forth in the charter, by-laws, articles of association or the act under which they were incorporated or registered.

The co-operative must, within 12 months after the taxation year, allocate the refund to all customers at the same rate except for non-members, who may be credited with a different rate. There may be different rates also for different commodities.

Payment of refunds must be made within the taxation year or within 12 months afterwards, to be deductible in the taxation year. Otherwise such payments are deductible when paid. Payment includes the following five methods:

1) By cash.

2) By certificates of indebtedness or issue of shares of capital stock, provided an amount of money equal to the certificates or shares issued has been disbursed in redeeming previous issues.

3) By applying the refund against a debt of the customer, providing the co-operative has statutory or written authority from the customer to do so.

4) By retention by the co-operative as a loan from a member, providing, the member or customer has given a written authority to the co-operative for this purpose.

5) By applying the refund on account of a loan or purchase of shares pursuant to a by-law that requires the member to make a loan or purchase shares and authorizes the application of the patronage dividend thereon, if the statute under which the co-operative is constituted provides that all by-laws of the co-operative are binding on all members.

There are, however, limitations on the amount of refund allowable as a deduction from income. A co-operative, having complied with the requirements set forth above, cannot claim as an allowance a refund to members greater than the income arising from member business. All refunds paid to non-members may be deducted from income.

Furthermore, the amount of refund cannot reduce the taxable income below 3 per cent of the capital employed in the business, with the exception that such capital includes all borrowed money other than money borrowed from chartered banks and credit unions. However, the 3 percent capital employed may be reduced by interest paid on money borrowed from sources other than chartered banks and credit unions.

Table 1. Marketing and Purchasing Co-operatives in Canada, 1932-1965.

Crop Year ended	Associations	Total Business including other Revenues	Marketing	Purchasing (Supplies)
	- number -	-$ 000 -		
1932	795	145,303	134,611	10,665
1935	697	130,384	120,853	9,241
1940	1,151	236,322	214,293	21,129
1945	1,824	585,650	500,481	81,360
1950	2,495	1,015,264	803,639	206,082
1955	1,949	941,377	704,047	228,446
1960	1,934	1,358,625	972,333	365,744
1965 1/ 2/	1,495	1,774,600	1,201,700	549,400

1/ Exclusive of sales of produce and supplies by service and fishermen's associations.

2/ Calendar year basis for 1965.

Table 2. - Farm Products marketed by Co-operatives in Canada, 1965.

	-$ 000 -
Grains and Seeds	574,100
Livestock and Livestock Products	218,000
Dairy Products	296,600
Fruits and Vegetables	46,900
Eggs and Poultry	51,200
All Others	14,900
Total	1,201,700

Table 3. - Merchandise and Supplies sold through Co-operatives in Canada, 1965.

	-$ 000 -
Food products	150,700
Feed	128,900
Petroleum	90,300
Hardware and Machinery	74,400
All Others	105,100
Total	549,400

Table 4. Credit Unions in Canada, 1920-1965.

Year	Number Chartered	Members	Assets	Loans Granted
	- number -		- million dollars -	
1920	113	31,752	6	---
1925	122	33,279	8	---
1930	179	45,767	11	---
1935	277	52,045	10	---
1940	1,167	201,137	25	---
1945	2,219	590,794	146	---
1950	2,965	1,036,175	312	---
1955	4,100	1,731,328	653	260
1960	4,608	2,553,951	1,299	481
1965	4,939	3,677,291	2,542	1,078

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CO-OPERATIVE BUSINESS IN CANADA

(Prepared in the Economics Branch, Canada Department of Agriculture, Ottawa)

This paper outlines the development of co-operatives in Canada and describes the various kinds now operating.

The growth of the co-operative movement in this country has been largely due to the farmer's struggle to improve his bargaining position. Because of this, the greatest development of co-operatives has been in rural areas, particularly in marketing farm products and purchasing farm supplies. Co-operatives also provide farmers with groceries, credit, electricity, insurance and many other consumer needs.

Co-operative activity among urban families has grown considerably in recent years. Credit unions and *caisses populaires* are now common in cities all across Canada and co-operative insurance and home-building are gaining popularity. In addition, there are now many co-operative stores serving city families, especially in Western Canada.

Early History

The pioneers in most parts of Canada had to co-operate a great deal just to survive. Much of this co-operation was informal, such as in barn-raising bees, exchange of labour, and assistance to neighbours in difficulties.

The pioneers developed business organizations that had some co-operative aspects. Meanwhile, in England, weavers at Rochdale and others were developing the basic principles for co operative business. These principles include:

(1) open membership (all who can benefit from the service may join);
(2) democratic control (each member has only one vote);
(3) limited return on capital at a modest rate;
(4) distribution of surplus on the basis of patronage;
(5) promotion of education.

A co-operative store was opened by coal miners in Stellarton, Nova Scotia, in 1861 and at least nine more followed in other communities in the province before 1900. None of these survived the First World War. The British

Canadian Co-operative Society at Sydney Mines was organized in 1906; it is the oldest and one of the most successful co-operatives in the purchasing of consumer goods in Canada today.

In Quebec, development of the co-operative movement began with the formation of a farmers' mutual fire-insurance company in 1852. Co-operative insurance soon spread to the life-insurance field, the first fraternal society being formed in 1863. Mutual fire insurance and fraternal societies continue to be important types of co-operative in Quebec and have spread to other provinces.

Another early development in Quebec was the organization of La Caisse Populaire de Lévis by Alphonse Desjardins in 1900. This was the beginning of co-operative credit and savings institutions, which now play an important role in the Canadian economy. The first farmers' co-operative trading organization in this province was formed in 1915, and a fishermen's co-operative was organized in 1923.

A Canadian farmers' organization, the Dominion Grange, was granted a federal charter in 1877. It was formed from branches of the American Grange in Ontario and Quebec. At its peak, the Grange had 31,000 members, of whom 26,000 were in Ontario, where they operated a salt-manufacturing company for 38 years. The Grange also went into fire-insurance business for 22 years and in 1879 started a banking operation that lasted seven years. The Grange eventually united with another farmers' organization.

About 1890, the Patron of Industry organization came to Canada from Michigan; it handled binder twine for farmers on a co-operative basis.

Agriculture in the Prairie Provinces began to develop rapidly about 1890. This encouraged the early settlers to try to establish better marketing facilities. The beginnings of the co-operative movement in this section of Canada were made by organizations formed by these farmers.

The federal Department of Agriculture helped farmers in the Territories (now Saskatchewan and Alberta) to form co-operative creameries during the 1890s and early 1900s. These provided marketing facilities for cream in communities where there had not been any. Another early co-operative creamery was established in the Duncan area of Vancouver Island in 1896.

There was much dissatisfaction among the Prairie pioneers about the marketing of grain. In the early 1900s, the Territorial Grain Growers Association and the Manitoba Grain Growers Association were formed. While some progress was made in obtaining relief through regulatory legislation, these organizations soon decided that co-operative marketing was the real solution and the Grain Growers Grain Company was organized in 1906. Some farmer-owned local elevator companies had been formed before this date.

Province-wide co-operative elevator companies were well established in each of the three Prairie Provinces by 1913. The United Grain Growers Ltd. was formed in 1917 through amalgamation of two of these: the Grain Growers' Grain Company in Manitoba and the Alberta Farmers' Co-operative Elevator Company.

Although some of the early co-operatives survived and are still in existence, many of them either failed or evolved into joint-stock companies. They were handicapped by lack of appropriate legislation dealing with their incorporation and operation. Manitoba enacted the first provincial co-operative act in 1887 and Quebec followed in 1906. In 1908 a federal bill for incorporation of co-operatives passed the House of Commons only to be rejected by the Senate. In subsequent years, provincial co-operative legislation became general.

Meanwhile the need of some common association among co-operatives was felt. Thus, a small group of leaders met in Hamilton on March 6, 1909, to form the Co-operative Union of Canada, which became a co-ordinating and educational body.

Growth

The co-operative movement in Canada expanded rapidly during the first 15 years of this century. In addition to the co-operative grain elevator companies, numerous small purchasing and marketing co-operatives were formed. However, many of these could not cope with the rapid changes in price levels that occurred between 1916 and 1924 and failed during this period.

Meanwhile, the farmers of Western Canada, having already built a system of co-operative grain elevators and creameries, developed a keen interest in the pooling principle. Through this they could receive average annual prices for their produce rather than the prevailing market price on delivery date. Pooling was particularly attractive in the marketing of cereal grains, as farmers usually delivered most of their grain during the autumn, when prices were often lowest. By 1925, Prairie farmers organized three large grain pools, which handled about half the grain marketed in the Prairie Provinces. A number of other pools organized during the 1920s followed the pattern set by the grain pools.

The severe depression that began in 1929 gave rise to difficult problems for many marketing co-operatives. Prices of agricultural products held a downward trend for over three years and eventually stabilized at extremely low levels. This led to failure of a number of the weaker co-operatives and imperilled even strong ones. For example, Saskatchewan Co-operative Creameries Ltd. went bankrupt, but was later reorganized. The grain pools made payments at time of delivery that were expected to be substantially below the final price. In the 1929-30 crop year, prices fell so rapidly that these initial payments proved to be much higher than prices realized when the grain was sold. Government-guaranteed loans tided the three grain pools over the crisis.

It was now established that even large pooling co-operatives could not stabilize the prices of Canadian grain. The Canadian Wheat Board was formed to assist in this stabilization. It operates pools for marketing the grain of the Prairie Provinces. The Western grain co-operatives, as agents for the Canadian Wheat Board, assemble and store half the grain marketed in Canada.

Despite all the setbacks during the Depression, farmers continued to give their support to co-operatives, so that the basic strength of the movement was unimpaired. Indeed, the 1930s brought a revival of interest in co-operative purchasing. The grain-marketing co-operatives, especially the Saskatchewan Wheat Pool, assisted farmers in organizing new co-operatives. With lower prices for farm products, savings on the purchase of farm supplies became more important. For example, in the Prairie Provinces the mechanization of agriculture led to special interest in savings on the cost of petroleum. A small group of farmers organized Consumers Co-operative Refineries Ltd. in 1935 and built the first co-operative oil-refinery in the world. This was the beginning of an upsurge in co-operative purchasing in Canada, which continues to this day.

Both purchasing and marketing co-operatives have continued to grow since 1940, but the most spectacular gains have been in the service field. Before 1930, financial co-operatives (*caisses populaires* and credit unions) had been practically limited to Quebec, but during the Thirties special legislation facilitating the development of credit unions was enacted in a number of provinces. The numbers, membership and assets of credit unions and *caisses populaires* have since grown with great rapidity. Co-operative insurance in the life, medical and automobile fields also has developed greatly during the last 20 years. Rural electrification co-operatives, particularly in Alberta, have brought electric power to thousands of farm homes; and co-operative housing has taken great strides in Eastern and Western Canada.

Co-operatives in 1966

For the year 1966, the Department of Agriculture received reports on 2,538 co-operatives, excluding credit unions. They had a total membership of 1,625,300 and a total volume of business of $1.95 billion. These co-operatives fall into the following classes: marketing and purchasing (1,420), fishermen's (83), service (663) and production (372). The marketing and purchasing co-operatives were served by eight co-operative wholesales.

In 1966 there were 4,871 credit unions with 3,953,200 members and $2.9 billion in assets.

Marketing and Purchasing Co-operatives

The total volume of business of the 1,420 marketing and purchasing co-operatives amounted to $1,874 million in 1966, the highest on record. This was an increase of $99 million, or $5\frac{1}{2}$ per cent, over the previous year; and a thirteenfold increase over 1932, the first year co-operative statistics were tabulated. However, the number of co-operatives has been steadily declining since the peak year of 1950, reflecting the trend of consolidation into larger units.

Marketing of farm products accounted for 66 per cent of the total volume of business in 1966, distribution of farm supplies and consumer goods (purchasing) 32 per cent, and service revenue and miscellaneous income, 2 per cent. The volume of purchasing business, through only half that of marketing,

has increased at a more rapid rate. Marketing business in 1966 was almost triple that in 1946, but purchasing volume increased more than sixfold in the same period.

The value of grains and seeds marketed by co-operatives in Canada is greater than that of any other commodity. Grains and seeds, and livestock and livestock products, are marketed chiefly in the Prairie Provinces. Dairy products are handled in all provinces except Newfoundland, with Ontario and Quebec together accounting for 52 per cent of the total in 1966.

Farm supplies accounted for the greater part of Canadian co-operative purchases of $609 million in 1966. The co-operative purchasing of feed is particularly important in Ontario, Quebec and British Columbia. Petroleum products are the main commodities purchased co-operatively in the Prairie Provinces.

Co-operative purchasing of some consumer items, especially food, is also large. Even these items are sold mainly to rural people, though in Western Canada co-operative supermarkets serve large numbers of urban people. A number of these city co-operatives were organized by farmers and gradually gained urban support.

Some co-operatives, especially in the Eastern provinces, market a variety of agricultural products and also purchase farm supplies. These, and the purchasing co-operatives, are generally local organizations serving farmers near a trading centre.

A large part of the co-operative marketing in Canada is carried out by province-wide organizations. Each of these assembles, stores and sells a few closely-related commodities; some of them, including most dairy-product and poultry-marketing co-operatives, process as well. Most of the grain and livestock marketed through co-operatives is processed by other firms, though some co-operatives do their own. For example, the Saskatchewan Wheat Pool operates a flour mill, and much of the livestock marketed in Quebec is processed in the packing plants of La Coopérative Fédérée. There are co-operative abattoirs in Nova Scotia, Ontario and Manitoba. Likewise honey, oilseeds, maple syrup, fruits and vegetables are processed in some co-operative plants.

A few marketing and purchasing co-operatives operate on an interprovincial basis. The United Grain Growers Limited has elevators throughout Western Canada and terminals on the Great Lakes and in Vancouver. Canadian Co-operative Wheat Producers Limited represents the three provincial wheat-pools. Through it, the three member wheat-pools consider programs and policies common to each of them and to the many thousands of grain producers in the Prairie Provinces.

Canadian Co-operative Implements Limited is an independent, farmer-owned association with its head office in Winnipeg. It was set up in 1940 to manufacture and distribute farm machinery. Its membership extends over the Prairie Provinces and northwestern Ontario. Sales of machinery by the company in 1966 were $20 million.

Canadian Co-operative Wool Growers Limited operates on a national basis. It has handled almost 70 per cent of the wool going through government-registered stations during the past ten years.

Co-operative wholesales -- Nearly all of the co-operatives that purchase farm supplies and consumer goods for their members are affiliated with one or more of the eight co-operative wholesales in Canada. The wholesales provide the affiliated co-operatives with a wide range of goods, but they do not supply all their requirements. Some of the wholesales are also central marketing agencies for farm products. The total assets of the eight wholesales and those of the Interprovincial Co-operatives Limited (a wholesaler for the wholesales) amounted to $176 million in 1966. Sales of $465 million were almost 2½ times those of 1956.

Over 87 per cent of the total business of the regional wholesales was reported by the three largest: La Coopérative Fédérée de Québec, United Co-operatives of Ontario and Federated Co-operatives Limited in the Prairie Provinces.

La Coopérative Fédérée, with a turnover exceeding $150 million annually, is one of the mainstays of agriculture in Quebec. It operates a number of abattoirs, and through contract arrangements with poultry and hog producers has established an integrated program of production. It is a major supplier of agricultural feeds, fertilizers, petroleum products and some types of machinery.

In addition to distributing farm supplies, petroleum and equipment, United Co-operatives of Ontario manufactures feeds and fertilizers. It also markets livestock and grain. Formerly, UCO marketed dairy and poultry products, but most of this type of business was transferred to a new co-operative, the United Dairy and Poultry Co-operative Limited, organized in 1958. Nevertheless, UCO operates a poultry-processing plant and contracts with producers for its supply of broilers and turkeys.

In 1964, UCO embarked on a program of amalgamation with local co-operatives to provide co-operative members with the benefits and efficiencies of an integrated wholesale-retail system for the distribution of goods and services. In the first three years of the program, 44 local co-operatives merged with the wholesale.

Federated Co-operatives Limited provides consumer goods, petroleum products, fertilizers and other farm supplies to local co-operatives throughout Alberta, Saskatchewan, Manitoba and part of northwestern Ontario. This co-operative was originally formed by amalgamation of the Saskatchewan Co-operative Wholesale Society and Consumers Co-operative Refineries Ltd. It has spread from Saskatchewan to other provinces by amalgamation with the co-operative wholesales serving those areas.

The provincial and regional wholesales in 1940 formed Interprovincial Co-operatives Limited. This central agency co-ordinates the purchasing of certain food products, household appliances and farm supplies by consolidating

the buying. The co-operative operates a chemical plant in Manitoba, a food plant in British Columbia and a herbicide plant in Saskatchewan. It has control of the "Co-op" label, which is used on only high-standard co-operative products. There is an increasing volume of Co-op brand products sold every year.

Western Co-operative Fertilizers, organized on a partnership basis by Federated Co-operatives and the Alberta and Saskatchewan wheat-pools to supply the fertilizer needs of co-operative members in the Western provinces, was incorporated in February 1964. The plant, built on a 320-acre site near Calgary, Alberta, has an annual production capacity of 225,000 tons, with space for future expansion. The new plant was officially opened in October 1965 and went into full-scale production a few months later. Total output of the plant goes to the three partner-members for distribution to local co-operatives.

Several Canadian co-operatives are members of co-operatives in the United States. The business activities of these organizations include a milking-machine factory, fertilizer plants and other plants for farm supplies in the United States.

Financial structure -- Although the proportion of agricultural products sold through co-operatives has changed little in recent years, co-operative buying of farm supplies and consumer goods has continued to expand. This growth has accompanied a rapid increase in the total assets of the co-operative movement. In 1966 marketing and purchasing co-operatives had total assets of $770 million, compared with $464 million in 1956. In addition, the wholesales had assets of $176 million in 1966, of which $61 million were provided by their member co-operatives.

At least 48 per cent of the capital of marketing and purchasing co-operatives was provided by the members. Their equity in the total assets ($770 million) was reported at $370 million in 1966. However, the reported members' equity does not include money lent either directly or through co-operative agencies by members of one co-operative to other co-operatives; this sum may now be substantial. In recent years some co-operatives, especially the wholesales, have offered debentures and other securities for sale to the general public; but it is likely that most of these have been bought by co-operatives or their members.

Local marketing and purchasing co-operatives may get loans from credit unions, central credit societies, co-operative wholesales and co-operative insurance companies. In several provinces the surplus funds of both local and wholesale co-operatives are deposited with a central credit society.

Fishermen's Co-operatives

Fishermen's co-operatives operate in all provinces. In 1966 there were 83 such organizations, with 10,000 members. They sold $27-million worth of fish and $3-million worth of supplies. There are three federations of fishermen's co-operatives: United Maritime Fishermen, Quebec United Fishermen and Saskatchewan Co-operative Fisheries Limited.

In British Columbia all fishermen are eligible for membership in one large central co-operative, the Prince Rupert Fishermen's Co-operative Association. This association operates fish-processing plants in Prince Rupert and Vancouver, as well as a fishermen's supply business in Prince Rupert. British Columbia fishermen also have co-operative credit and insurance plans.

Service Co-operatives

These co-operatives provide insurance, electricity, housing and other services, including water, transportation, cold storage and seed-cleaning. Service co-operatives reporting for 1966 (excluding insurance co-operatives other than medical insurance co-operatives) numbered 663 and had a membership of 273,000, business revenue of $32 million and assets of $101 million.

Insurance -- Co-operative insurance companies are active in all provinces. They handle life, automobile, fire, hail, general casualty, fidelity and medical insurance.

At the time of their founding, some of the mutual insurance companies were similar to co-operatives in principle. However, statutory provisions governing life-insurance companies in Canada make it very difficult to maintain democratic policy-holder control in a large insurance firm. Some of the smaller mutuals, especially in the farm-life insurance field, operate like co-operatives.

About 50 medical insurance co-operatives were functioning in Canada in 1966. Originally, hospitalization was the chief benefit to the members. The entry of the federal and provincial governments into hospitalization insurance has changed the role of these co-operatives, but they continue to provide general medical insurance.

Electrification -- Rural electrification in Alberta, which private companies considered too costly to undertake, is financed largely through co-operatives. These electrification co-operatives organize the farmers of a community to obtain electric services for their farms. When the necessary membership is obtained by a new electrification co-operative, it contracts with a utility company serving the area to build and maintain power-lines and provide power. The power company bills the co-operative for construction at cost. The co-operative has access to long-term, government-guaranteed loans to pay for the power-line. Each member contracts with the co-operative to pay his share of the loan during its term. The co-operatives, organized within the past 20 years, provide electricity to more than 60,000 Alberta farms -- over 80 per cent of the farms in the province.

Housing -- Housing co-operatives have developed mainly in Newfoundland, Nova Scotia, Quebec, Ontario, Manitoba and Saskatchewan. The operation by university students of high-rise residences, such as the 18-storey Rochdale College in Toronto, is a new development in this field. Co-operative housing projects are eligible for loans under the National Housing Act. Credit unions, co-operative credit societies and co-operative insurance companies help finance some of these projects.

Production Co-operatives

Besides co-operative farms and wood-producers' co-operatives this group of societies includes grazing, feeder, artificial-insemination and machinery co-operatives. In 1966 the volume of business amounted to $15 million, for 372 production co-operatives with 33,000 members and $10 million of assets.

Credit Unions

Credit unions and *caisses populaires* are co-operative societies organized among groups of people to accumulate savings and lend the money to members at reasonable rates of interest. The Rustico Farmer's Bank, chartered in Prince Edward Island in 1864, was a forerunner of these credit organizations.

Alphonse Desjardins organized the first *caisse populaire* at Lévis, Quebec, in 1900. He organized two others in the province before the Co-operative Syndicates Act, which provides the legal basis for this type of organization, was passed in 1906. By 1930 there were many *caisses populaires* in Quebec. Other provinces lacked legislation governing incorporation and supervision of *caisses populaires*, so that only a few were organized and most of these failed.

The *caisse populaire* idea spread to the United States. There it was modified to form credit unions, which met the needs of industrial workers. The *caisse populaire* used the parish, and the industrial credit union used the place of employment, as a basis of association for members.

Interest in credit unions increased during the depression of the 1930s. In Nova Scotia, the organization of credit unions was encouraged with considerable success by extension workers of St. Francis Xavier University. Management of industrial firms across Canada began to see the potential of credit unions in helping their employees. In a few years, appropriate legislation was adopted in all provinces and the organization of both industry and rural community credit unions was encouraged. The finance-co-operative movement entered a phase of rapid growth, which still continues. Credit unions and *caisses populaires* now have more members and more assets than all other types of co-operative added together. In 1966 there were 4,871 credit unions and *caisses populaires*, with 3,953,200 members and total assets of $2.9 billion. The Province of Quebec, still leading, has a third of all the finance co-operatives in the country, half of the total membership and more than 50 per cent of the assets.

Central credit unions and *caisses populaires* have been formed in all provinces. These act as depositories for the surplus funds of their member locals, and lend money to their members and, in some cases, to other co-operative organizations. Membership of the centrals is composed chiefly of local credit unions and *caisses populaires*, but in some provinces the central includes co-operatives and is called a co-operative credit society. Altogether, there were 28 centrals in Canada in 1966. Some of these served a small region, others whole provinces. Their total assets were $407 million, including investments of $190 million and loans to members of $126 million. Members' deposits totalled $299 million and the centrals made loans of $265 million to members during the year.

The Canadian Co-operative Credit Society, organized in 1953, operates on the national level as a central credit organization for the co-operative movement. Its members include both provincial co-operative credit societies, or central credit unions and *caisses populaires*, and co-operative wholesales.

There were two co-operative trust companies operating in Canada during 1966, the Quebec Trust Company, an affiliate of La Fédération des Caisses Populaires Desjardins, and the Co-operative Trust Company Limited in Saskatchewan. Their combined assets were approximately $60 million. These trusts, on a co-operative basis, provide the same kinds of service generally offered by trust companies, such as administration of estates, corporate and other trusteeships, mortgage loans and guaranteed deposits. In late 1967, the Co-operative Trust of Saskatchewan was granted federal incorporation by the Canadian Parliament and, in 1968, extended its membership and services beyond the borders of Saskatchewan as the Co-operative Trust Company of Canada.

Landmark Credit Limited and Landmark Savings and Loan Association, two affiliated organizations, were incorporated in Ontario in 1962 and 1965 respectively to provide first and second mortgages to credit-union members. They had combined total assets of $3 million at the end of 1966.

Supervision and Direction

Co-operative wholesales provide certain supervisory services to local associations. Some have qualified auditors doing continuous audit for local co-operatives and making regular reports to boards of directors. They also help local co-operatives with their income-tax returns. The business affairs of some local co-operatives are managed under the direction of the wholesale.

Nearly all Canadian co-operatives are incorporated under provincial authority. There is not yet any general federal co-operative legislation. However, a few co-operatives that operate in more than one province have been set up under the Canada Corporations Act, or special acts. There are ordinances governing organization of co-operatives in the Yukon and Northwest Territories.

The extent of supervision and guidance offered to co-operatives varies from province to province. In some, the only government service for most types of co-operative is to ensure that they are properly incorporated and that the correct legal procedures are followed in amalgamations and dissolutions. In others, the registrar of co-operative associations has a small staff, which assists co-operatives during organization and provides advisory services. The Saskatchewan government has a special department to deal with co-operative matters. Provision of inspection and advisory services are among the main functions of this department.

There is more supervision of credit unions and *caisses populaires* than of other co-operatives. In most provinces, each society is inspected by a government representative about once a year. In Ontario, Credit Union League fieldmen do about half this inspection work. The inspector checks to see that the credit union is complying with the act and bylaws; he also looks for unsound management practices and other flaws that may impair the financial soundness of the credit union.

Co-operatives in Canada are generally subject to the same taxes as other business firms. However, they do not have to pay federal income tax during their first three years of operation. Under the Income Tax Act, patronage dividends paid by a business firm (including co-operatives) may, subject to certain restrictions, be deducted in computing income for income-tax purposes. Credit unions are exempt from income tax.

Education and Promotion

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. The Co-operative Union of Canada, which celebrated its fiftieth anniversary in 1959, concentrates its efforts in English-speaking areas. Le Conseil Canadien de la Coopération serves the co-operatives in the areas where the French language predominates. Both are members of the International Co-operative Alliance, with headquarters in London, England.

Membership in the Co-operative Union of Canada includes 30 co-operative societies and provincial co-operative unions, the Credit Union National Association, the Co-operative Wholesale Society of Great Britain and the Scottish Co-operative Wholesale Society.

A few Canadian universities offer courses on co-operatives and some conduct extension work in this field. The most extensive program is offered by St. Francis Xavier University in Antigonish, Nova Scotia. Since the early 1930s, this university has carried on extension work in the Maritime Provinces to organize and assist co-operatives. In more recent years a variety of courses have been developed to train people in co-operation. Some of these are short courses for directors and managers of existing co-operatives and credit unions; others are offered as an integral part of university work. In addition, special courses are offered for visitors from other countries who wish to learn about co-operatives in Canada. The Coady International Institute was set up at St. Francis Xavier University in 1960 to train students from abroad. The extension service of Memorial University in Newfoundland also sponsors short courses for co-operative members and foreign students.

To provide education and training in co-operative principles and methods for employees and directors, the Co-operative Institute was established in Saskatoon in 1955, under the sponsorship of the Co-operative Union of Saskatchewan. It has concentrated on short courses, often only one or two weeks long, for co-operative directors, managers and employees. In 1959 with support from co-operatives in the four Western provinces, the Co-operative Institute was reorganized as the Western Co-operative College. College buildings, including residences, were constructed in 1962 and additional residences were built in 1965, which altogether provide accommodations for 84 students. In Quebec, the insurance and finance co-operatives founded the Institut Coopératif Desjardins in 1963. The Institut specializes in social leadership and adult education for Quebec co-operators and foreign students. The large co-operatives also conduct educational programs to strengthen their own organizations and to stimulate interest in forming new co-operatives. The work of the Saskatchewan Wheat Pool in this field is especially important; it has operated a broad educational program for many years.

A number of the larger co-operatives either publish or sponsor the publication of periodicals. Six of the larger publications, one in French, are bi-monthly; others appear monthly in both languages. A digest of co-operative news and information of general interest is issued quarterly. One weekly newspaper of general interest and one farm magazine are also sponsored by large co-operatives.

Co-operative Development in the North

The Co-operative Development Program, which was started in the Canadian North in 1959, has met with the interest of the local people. On April 1, 1966, there were 22 co-operatives in operation in the Northwest Territories and northern Quebec. Another eight groups were in the formative stage.

Total sales of these co-operatives are now in excess of $1 million, with some of the individual co-operatives at the $100,000 level. Though Arctic co-operatives were heavily dependent on outside capital for their initial development, members' equity in total assets now exceeds outstanding debt by some $300,000.

The social impact these co-operatives have made, in helping the people of the North to recognize more fully the importance of their role in their own affairs, has been at least as significant as the economic benefits achieved.

Apart from the Department of Indian Affairs and Northern Development, the governments of Quebec and the Northwest Territories are now providing assistance to a number of co-operative developments in northern Quebec and the Territories. The Co-operative Union of Canada and the Conseil de la Coopération du Québec are also participating in co-operative development in the North.

APPENDIX I

Growth of Marketing and Purchasing Co-operatives in Canada, 1932-66

Crop year ended	Associations reporting	Marketing	Purchasing	Total business including other revenue [a]
		thousand dollars		
1932	795	134,611	10,665	145,303
1936	781	144,962	12,788	158,165
1937	1,024	157,031	16,363	173,927
1938	1,217	134,493	20,091	155,080
1939	1,332	180,747	20,400	201,659
1940	1,151	214,293	21,129	236,322
1941	1,395	215,030	24,895	242,158
1942	1,722	214,762	42,327	257,090
1943	1,650	295,499	55,689	352,785
1944	1,792	459,798	65,508	527,855
1945	1,824	500,481	81,360	585,650
1946	1,953	454,564	95,603	554,329
1947	2,095	578,638	127,001	712,583
1948	2,249	616,347	157,874	780,085
1949	2,378	783,293	191,804	982,232
1950	2,495	803,639	206,082	1,015,264
1951	2,348	769,264	209,985	988,459
1952	2,194	840,113	234,848	1,112,469
1953	2,221	874,698	245,629	1,147,590
1954	2,086	735,780	234,583	989,066
1955	1,949	704,047	228,446	941,377
1956	2,041	823,389	258,751	1,092,516
1957	2,022	817,601	283,730	1,116,002
1958	2,002	898,168	296,743	1,209,805
1959	1,982	963,330	332,943	1,315,167
1960	1,934	972,333	365,744	1,358,625
1961	1,914	1,019,819	391,761	1,430,197
1962 [b]	1,877	928,502	423,302	1,372,605
1963 [b]	1,583	1,100,200	489,000	1,617,900
1964	1,546	1,234,000	522,800	1,780,600
1965	1,495	1,201,700	549,400	1,774,600
1966 [c]	1,420	1,238,600	609,500	1,873,600

[a] *Other revenue includes patronage rebates from co-operative wholesales, interest on investments, rental income, custom work, etc.*

[b] *Calendar year basis for 1963 and subsequent years.*

[c] *Preliminary.*

APPENDIX II

Volume of Business of Marketing and Purchasing Co-operatives in Canada, 1966[a]/

	thousand dollars	
Farm products		
Dairy products	306,800	
Fruits and vegetables	42,500	
Grains and seeds	587,100	
Livestock and products	234,400	
Poultry and eggs	54,100	
All other	13,700	1,238,600
Supplies		
Food products	166,800	
Feed	142,300	
Fertilizer and spray material	39,800	
Hardware and machinery	79,900	
Petroleum	94,700	
All other	86,000	609,500
Total sales		1,848,100
Service revenue		14,700
Other income		10,800
Total volume of business		1,873,600

[a]/ *Preliminary.*

APPENDIX III

Growth of Credit Unions and *Caisses Populaires* in Canada, 1946-66

Year	Credit Unions and *caisses populaires*	Members	Members as a percentage of total population	Assets	Loans to members during year
				million dollars	
1946	2,422	688,739	5.6	188	53
1947	2,516	779,199	6.2	221	81
1948	2,608	850,608	6.6	254	90
1949[a]/	2,819	940,427	6.9	282	100
1950	2,965	1,036,175	7.5	312	108
1951	3,121	1,137,931	8.1	359	125
1952	3,333	1,260,435	8.7	424	154
1953	3,606	1,434,270	9.7	489	203
1954	3,920	1,560,714	10.3	552	213
1955	4,100	1,731,328	11.1	653	260
1956	4,258	1,870,277	11.6	761	310
1957	4,349	2,059,835	12.4	846	345
1958	4,485	2,187,494	12.8	1,009	391
1959	4,570	2,360,047	13.5	1,158	473
1960	4,667	2,544,300	13.9	1,299	482
1961	4,682	2,740,251	14.9	1,509	579
1962	4,767	2,879,179	15.3	1,674	676
1963	4,809	3,123,735	16.6	1,920	771
1964	4,870	3,418,033	17.6	2,213	919
1965	4,939	3,677,291	18.6	2,542	1,078
1966[b]/	4,871	3,953,200	19.5	2,923	1,132

[a]/ *Newfoundland included in 1949 and subsequent years.*

[b]/ *Preliminary.*

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CO-OPERATIVE BUSINESS IN CANADA

(Prepared with the help of the Economics Branch, Canada Department of Agriculture, and the Business Finance Division, Statistics Canada, Ottawa.)

This paper outlines the development of co-operatives in Canada and describes the various kinds.

The growth of the co-operative movement in this country has been largely due to the farmer's struggle to improve his bargaining position. Because of this, the greatest development of co-operatives has been in rural areas, particularly in marketing farm products and purchasing farm supplies. Co-operatives also provide farmers with groceries, credit, electricity, insurance and many other consumer needs.

Co-operative activity among urban families has grown considerably in recent years. Credit unions and *caisses populaires* are now common in cities all across Canada and co-operative insurance and home-building are gaining in popularity. In addition, there are now many co-operative stores serving city families, especially in Western Canada.

Early history

Agricultural organizations with some co-operative features existed in Canada from the days of the earliest settlers. Most of these were informal, such as barn-raising bees, exchanges of labour, etc., and were economic necessities in the pioneer way of life, where neighbours had to depend on each other to survive. The earliest formalized co-operatives as such did not make their appearance in Canada until the latter part of the nineteenth century.

Meanwhile, in England, weavers at Rochdale established in 1844 the basic principles for the co-operative form of business organization. These include:

(1) open membership (all who can benefit from the service may join);

(2) democratic control (each member has only one vote);

(3) limited return on capital at a modest rate;

(4) distribution of surplus on the basis of patronage;

(5) promotion of education.

A co-operative store was opened by coal miners in Stellarton, Nova Scotia, in 1861 and at least nine more followed in other communities in that province before 1900. None of these survived the First World War. The British Canadian Co-operative Society at Sydney Mines was organized in 1906; it is the oldest co-operative and one of the most successful engaged in the purchasing of consumer goods in Canada today.

In Quebec, development of the co-operative movement began with the formation of a farmers' mutual fire-insurance company in 1852. Co-operative insurance soon spread to the life-insurance field, the first fraternal society being formed in 1863. Mutual fire-insurance and fraternal societies continue to be important types of co-operative in Quebec, and they have spread to other provinces.

Another early development in Quebec was the organization of La Caisse Populaire de Lévis by Alphonse Desjardins in 1900. This was the beginning of co-operative credit and savings institutions, which now play an important role in the Canadian economy. The first farmers' co-operative trading organization in this province was formed in 1915; a fisherman's co-operative was organized in 1923.

A Canadian farmers' organization, the Dominion Grange, was granted a federal charter in 1877. It was formed from branches of the American Grange in Ontario and Quebec. At its peak, the Grange had 31,000 members, of whom 26,000 were in Ontario, where they operated a salt-manufacturing company for 38 years. The Grange also went into the fire-insurance business for 22 years and in 1879 started a banking operation that lasted seven years. The Grange eventually united with another farmers' organization.

About 1890, the Patron of Industry organization came to Canada from Michigan; it handled binder-twine for farmers on a co-operative basis.

Agriculture began to develop rapidly in the Prairie Provinces about 1890, which encouraged the early settlers to try to establish better marketing facilities. The beginnings of the co-operative movement in this part of Canada were made by organizations formed by these farmers.

During the 1890s and early 1900s, the federal Department of Agriculture helped farmers in the territories that are today the Provinces of Saskatchewan and Alberta to form co-operative creameries. These provided marketing facilities for cream in communities where there had been none previously. Another early co-operative creamery was established in the Duncan area of Vancouver Island in 1896.

There was much dissatisfaction among the Prairie pioneers about the marketing of grain. In the early 1900s, the Territorial Grain Growers Association and the Manitoba Grain Growers Association were formed. While some progress was made in obtaining relief through regulatory legislation, these organizations soon decided that co-operative marketing was the real solution, and the Grain Growers Grain Company was organized in 1906. Some farmer-owned local elevator companies had been formed before this date.

Province-wide co-operative elevator companies were well established in each of the three Prairie Provinces by 1913. The United Grain Growers Ltd. was formed in 1917 through amalgamation of two of these — the Grain Growers' Grain Company in Manitoba and the Alberta Farmers' Co-operative Elevator Company.

Though some of the early co-operatives survived and are still in existence, many either failed or evolved into joint-stock companies. They were handicapped by lack of appropriate legislation dealing with their incorporation and operation. Manitoba enacted the first provincial co-operative act in 1887 and Quebec followed in 1906. In 1908, a federal bill for incorporation of co-operatives passed the House of Commons only to be rejected by the Senate. In subsequent years, provincial co-operative legislation became general.

Meanwhile the need was felt of some common association among co-operatives. Thus a small group of leaders met in Hamilton, Ontario, on March 6, 1909, to form the Co-operative Union of Canada, which became a co-ordinating and educational body.

Growth

The co-operative movement in Canada expanded rapidly during the first 15 years of the present century. In addition to the co-operative grain-elevator companies, numerous small purchasing and marketing co-operatives were formed. Many of these, however, could not cope with the rapid changes in price levels that occurred between 1916 and 1924, and they failed during this period.

Meanwhile, the farmers of Western Canada, having built a system of co-operative grain elevators and creameries, developed a keen interest in the pooling principle, through which they could receive average annual prices for their produce rather than the prevailing market price on delivery date. Pooling was particularly attractive in the marketing of cereal grains, as farmers usually delivered most of their grain during the autumn, when prices were often lowest. By 1925, Prairie farmers had organized three large grain-pools, which handled about half the grain marketed in the Prairie Provinces. A number of other pools organized during the 1920s followed the pattern set by the grain pools.

The Great Depression, which began in 1929, gave rise to difficult problems for many marketing co-operatives. Prices of agricultural products held a downward trend for over three years and eventually stabilized at extremely low levels. This led to the failure of a number of the weaker co-operatives and imperilled even the strong ones. For example, Saskatchewan Co-operative Creameries Ltd went bankrupt, but was later reorganized. The grain-pools made payments at time of delivery that were expected to be substantially below the final price. In the crop year 1929-30, prices fell so rapidly that these initial payments proved to be much higher than prices realized when the grain was sold. Government-guaranteed loans tided the three grain-pools over the crisis.

It was now established that even large pooling co-operatives could not stabilize the prices of Canadian grain. The Canadian Wheat Board was formed to assist in this stabilization. It operates pools for marketing the grain of the Prairie Provinces. The Western grain co-operatives, as agents for the Canadian Wheat Board, assemble and store more than half the grain marketed in Canada.

Despite all the setbacks during the Depression, farmers continued to give their support to co-operatives, so that the basic strength of the movement was unimpaired. Indeed, the 1930s brought a revival of interest in co-operative purchasing. The grain-marketing co-operatives, especially the Saskatchewan Wheat Pool, helped farmers to organize new co-operatives. With lower prices for farm products, savings on the purchase of farm supplies became more important. For example, on the Prairies the mechanization of agriculture led to special interest in savings on the cost of petroleum. A small group of farmers organized Consumers Co-operative Refineries Ltd in 1935 and built the first co-operative oil-refinery in the world. This was the beginning of an upsurge in co-operative purchasing in Canada, which continues to this day.

Both purchasing and marketing co-operatives have continued to grow since 1940, but the most spectacular gains have been in the service field. Before 1930, financial co-operatives (*caisses populaires* and credit unions) had been practically limited to Quebec, but during the Thirties special legislation facilitating the development of credit unions was enacted in a number of provinces. The numbers, membership and assets of credit unions and *caisses populaires* have since grown with great rapidity. Co-operative insurance in the life, medical and automobile fields also has developed greatly during the last 25 years. Rural electrification co-operatives, particularly in Alberta, have brought electric power to thousands of farm homes; and co-operative housing has taken great strides in Eastern and Western Canada.

Co-operatives in 1971

For the year 1971, the Department of Agriculture received reports on 2,389 co-operatives, excluding credit unions, with a total membership of 1,772,000 and a total volume of business of $2.38 billion. These co-operatives fall into the following classes: marketing and purchasing (1,210), fishermen's (73), service (713) and production (393). The marketing and purchasing co-operatives were served by seven co-operative wholesales.

Marketing and purchasing co-operatives

The total volume of business of the marketing and purchasing co-operatives amounted to $2,266 million in 1971, the highest on record. This was an increase of $192 million, or 9 per cent, over the previous year, and a fifteenfold increase over 1932, the first year co-operative statistics were tabulated. However, the number of co-operatives has been steadily declining since the peak year of 1950, reflecting the trend of consolidation into larger units.

Marketing of farm products accounted for 62 per cent of the total volume of business in 1971. distribution of farm supplies and consumer goods (purchasing) for 36 per cent, and service revenue and miscellaneous income for 2 per cent. The volume of purchasing business, though only a little more than half that of marketing, has increased at a more rapid rate. Marketing business in 1971 was triple that in 1946, but purchasing volume increased more than eightfold in the same period.

The value of grains and seeds marketed by co-operatives in Canada is greater than that of any other commodity. Grains and seeds, and livestock and livestock products, are marketed chiefly in the Prairie Provinces. Dairy products are handled in all provinces except Newfoundland, with Ontario and Quebec together accounting for 51 per cent of the total in 1971.

Farm supplies accounted for the greater part of Canadian co-operative purchasing in 1971, with food products a very strong second. The co-operative purchasing of feed is particularly important in Ontario, Quebec and British Columbia. Food and petroleum products are the main commodities purchased co-operatively in the Prairie Provinces.

Co-operative purchasing of consumer items, especially food, has been growing steadily in recent years and now represents a substantial part of co-operative business volume. The sale of consumer goods started as complementary to the main business of providing farm supplies, and thus they were sold mainly to rural people. However, with the gradual consolidation of units into larger centres, more and more urban people have adopted co-operative purchasing.

The direct-charge co-operative, a new form of co-operative purchasing that has sprung up in the last ten years, is largely urban-based. In this system, the co-operative charges for goods at or near cost and the members pay a service charge on a regular basis, usually weekly, to cover the expenses of the organization. Direct-charge co-operatives have spread over Ontario and the Atlantic Provinces and a somewhat similar system, known as "Cooprix", is operating in Quebec. The Western provinces, which were already quite strong in co-operative supermarkets, have not yet adopted the direct-charge system.

Some co-operatives, especially in the Eastern provinces, market a variety of agricultural products and also purchase farm supplies. These, and the purchasing co-operatives, are generally local organizations serving farmers near a trading centre.

A large part of the co-operative marketing in Canada is carried out by province-wide organizations. Each of these assembles, stores and sells a few closely-related commodities; some of them, including most dairy-product and poultry-marketing co-operatives, process as well. Most of the grain and livestock marketed through co-operatives is processed by other firms, though some co-operatives do their own. For example, the Saskatchewan Wheat Pool operates a flour-mill, and much of the livestock marketed in Quebec is processed in the packing-plants of La Coopérative Fédérée. Likewise honey, oilseeds, maple syrup, fruits and vegetables are processed in some co-operative plants.

A few marketing and purchasing co-operatives operate on an interprovincial basis. The United Grain Growers Limited has elevators throughout Western Canada and terminals on the Great Lakes

and in Vancouver. Canadian Co-operative Wheat Producers Limited represents the three provincial wheat-pools. Through it, the three member wheat-pools consider programs and policies common to themselves and to the many thousands of grain-producers in the Prairie Provinces.

Canadian Co-operative Implements Limited is an independent, farmer-owned association with its head office in Winnipeg. It was set up in 1940 to manufacture and distribute farm machinery. It serves 80,000 members spread over the Prairie Provinces and northwestern Ontario. In July 1972, this co-operative celebrated the official opening of a modern new farm-machinery manufacturing plant in Winnipeg.

Canadian Co-operative Wool Growers Limited operates on a national basis. It has handled almost 70 per cent of the wool going through government-registered stations for a great many years.

Co-operative wholesales — Nearly all the co-operatives that purchase farm supplies and consumer goods for their members are affiliated with one or more of the seven co-operative wholesales in Canada. The wholesales provide the affiliated co-operatives with a wide range of goods, but they do not supply all their requirements. Some of the wholesales are also central marketing agencies for farm products. Sales of the wholesales were $713 million in 1971, and consisted of supply sales ($466 million), of which food products, feed and petroleum were the leading items, and farm-product marketings ($247 million), led by livestock and dairy products.

Over 80 per cent of the total business of the regional wholesales was reported by the three largest: La Coopérative Fédérée de Québec, United Co-operatives of Ontario and Federated Co-operatives Limited in Western Canada.

La Coopérative Fédérée is one of the mainstays of agriculture in Quebec. It operates a number of abattoirs, and through contract arrangements with poultry and hog producers has established an integrated program of production. It is a major supplier of agricultural feeds, fertilizers, petroleum products and some types of machinery.

In addition to distributing farm supplies, petroleum and equipment, United Co-operatives of Ontario manufactures feeds and fertilizers. It also markets livestock and grain. Formerly, UCO marketed dairy and poultry products, but most of this type of business was

transferred to a new co-operative, the United Dairy and Poultry Co-operative Limited, organized in 1958. Nevertheless, UCO operates a poultry-processing plant and contracts with producers for its supply of broilers and turkeys.

In 1964, UCO embarked on a program of amalgamation with local co-operatives to provide co-operative members with the benefits and efficiencies of an integrated wholesale-retail system for the distribution of goods and services. As of 1972, UCO served 35,000 members through more than 100 branch outlets and acted as wholesaler for 60 local co-operatives.

Federated Co-operatives Limited provides consumer goods, petroleum products, fertilizers and other farm supplies to local co-operatives throughout British Columbia, Alberta, Saskatchewan, Manitoba and part of northwestern Ontario. Federated also operates two lumber mills, a plywood plant, an oil refinery and several oil-wells. Also, through a merger with Interprovincial Co-operatives, a central purchasing agency, Federated owns a chemical plant and is responsible for the "Co-op" label that is used only on high-standard co-operative products. This co-operative was originally formed by amalgamation of Saskatchewan Co-operative Wholesale Society and Consumers Co-operative Refineries Ltd. It has spread from Saskatchewan to other provinces by amalgamation with the co-operative wholesales serving those areas.

Western Co-operative Fertilizers, organized on a partnership basis by Federated Co-operatives and the Alberta and Saskatchewan wheat-pools (and later joined by Manitoba Pool Elevators) to supply the fertilizer needs of co-operative members in the Western provinces, was incorporated in February 1964. The plant, built on a 320-acre site near Calgary, Alberta, has an annual production capacity of 225,000 tons, with space for future expansion. The new plant was officially opened in October 1965 and went into full-scale production a few months later. Total output of the plant goes to the four partner-members for distribution to local co-operatives.

Several Canadian co-operatives are members of central or wholesale co-operatives in the United States. Through them they obtain certain kinds of farm equipment and machinery, fertilizer and other supplies and consumer goods.

Financial structure — The growth in co-operative marketing and purchasing has been accompanied by a rapid increase in the total assets of the co-operative movement. In 1971, marketing and purchasing co-operatives had total assets of $1,060 million, compared

to $618 million in 1961. In addition, the wholesales had assets of $238 million in 1971, of which $78 million was provided by their member co-operatives.

At least 46 per cent of the capital of marketing and purchasing co-operatives was provided by the members. Their equity in the total assets ($1,060 million) was reported at $491 million in 1971. However, the reported members' equity does not include money lent either directly or through co-operative agencies by members of one co-operative to other co-operatives; this sum may now be substantial. In recent years some co-operatives, especially the wholesales, have offered debentures and other securities for sale to the general public; but it is likely that most of these have been bought by co-operatives, their members or relatives of the members.

Local marketing and purchasing co-operatives may get loans from credit unions, central credit societies, co-operative wholesales and co-operative insurance companies. In several provinces the surplus funds of both local and wholesale co-operatives are deposited with a central credit society.

Fishermen's co-operatives

Fishermen's co-operatives operate in all provinces. In 1971 there were 73 such organizations, with 9,000 members. They sold $30-million worth of fish and $4-million worth of supplies. There are two wholesale fishermen's co-operatives — United Maritime Fishermen and Quebec United Fishermen.

In British Columbia, all fishermen are eligible for membership in one large central co-operative, the Prince Rupert Fishermen's Co-operative Association. This association operates fish-processing plants in Prince Rupert and Vancouver. British Columbia fishermen also have co-operative credit and insurance plans.

Service co-operatives

These co-operatives provide insurance, electricity, housing and other services, including water, transportation, cold storage, seed-cleaning and natural gas. Service co-operatives reporting for 1971 (excluding insurance co-operatives other than medical insurance co-operatives) numbered 713 and had a membership of 252,000, business revenue of $38 million and assets of $152 million.

Insurance — Co-operative insurance companies are active in all provinces. They handle life, automobile, fire, hail, general casualty, fidelity and medical insurance.

At the time of their founding, some of the mutual insurance companies were similar to co-operatives in principle. However, statutory provisions governing life-insurance companies in Canada make it very difficult to maintain democratic policy-holder control in a large insurance firm. Some of the smaller mutuals, especially in the farm-life insurance field, operate like co-operatives.

Medical-insurance co-operatives were functioning in five of the ten provinces in 1971. These co-operatives started mainly in the hospitalization field but gradually broadened their coverage to medical-surgical, etc. However, their fields were greatly narrowed by the entrance of federal and provincial governments into medical insurance in recent years. But they continue to provide coverage supplemental to the government plans, and in some cases act as insurance agents for the government plans.

Electrification — Rural electrification in Alberta, which private companies considered too costly to undertake, is financed largely through co-operatives. These electrification co-operatives organize the farmers of a community to obtain electric services for their farms. When the necessary membership is obtained by a new electrification co-operative, it contracts with a utility company serving the area to build and maintain power-lines and provide power. The power company bills the co-operative for construction at cost. The co-operative has access to long-term, government-guaranteed loans to pay for the power-line. Each member contracts with the co-operative to pay his share of the loan during its term. The co-operatives, organized within the past 25 years, provide electricity to about 90 per cent of Alberta's 63,000 farms.

Housing — Co-operative housing, which had its start in Nova Scotia, has gradually spread to all the provinces. The building type was at first the predominant type of housing co-operative. In this type a group of families get together to build single dwellings with the members themselves supplying as much of the labour as possible. In recent years the continuing-type co-operative for collective ownership of multiple housing has come to the fore. This type is usually non-profit and is generally set up as a community or neighbourhood with some common services. The members do not provide any labour; a professional builder is employed. The members are charged a rental to cover the amortization of capital cost over the useful life of the buildings and the cost of taxes and current expenses. Co-operative housing is eligible for funding under the National Housing Act and a total of 20 co-operative finance organizations are approved lenders under the Act.

Production co-operatives

Besides co-operative farms and wood-producers' co-operatives, this group of societies includes grazing, feeder, artificial-insemination and machinery co-operatives. In 1971, the volume of business amounted to $43 million for 393 production co-operatives with 35,000 members and $33 million of assets.

Credit unions

Credit unions and *caisses populaires* are co-operative societies organized among groups of people to accumulate savings and lend the money to members at reasonable rates of interest. The Rustico Farmer's Bank, chartered in Prince Edward Island in 1864, was a forerunner of these credit organizations.

Alphonse Desjardins organized the first *caisse populaire* at Lévis, Quebec, in 1900. He organized two others in the province before the Co-operative Syndicates Act, which provides the legal basis for this type of organization, was passed in 1906. By 1930 there were many *caisses populaires* in Quebec. Other provinces lacked legislation governing incorporation and supervision of *caisses populaires*, so that only a few were organized and most of these failed.

The *caisse populaire* idea spread to the United States. There it was modified to form credit unions, which met the needs of industrial workers. The *caisse populaire* used the parish, and the industrial credit union used the place of employment, as a basis of association for members.

Interest in credit unions increased during the depression of the 1930s. In Nova Scotia, the organization of credit unions was encouraged with considerable success by extension workers of St. Francis Xavier University. Management of industrial firms across Canada began to see the potential of credit unions in helping their employees. In a few years, appropriate legislation was adopted in all provinces and the organization of both industry and rural community credit unions was encouraged. The finance co-operative movement entered a phase of rapid growth, which still continues. Credit unions and *caisses populaires* now have more members and more assets than all other types of co-operative added together. In 1971 there were 4,444 credit unions and *caisses populaires*, with 5,454,292 members and total assets of $5.6 billion. The Province of Quebec, still leading, has about 38 per cent of all the finance co-operatives in the country, 56 per cent of the total membership and more than 50 per cent of the assets.

Central credit unions and *caisses populaires* have been formed in all provinces. These act as depositories for the surplus funds of their member locals, and lend money to their members and, in

some cases, to other co-operative organizations. Membership of the centrals is composed chiefly of local credit unions and *caisses populaires*. Altogether, there were 20 centrals in Canada in 1971. Some of these served a small region, others whole provinces. Their total assets were $852 million, including investments of $367 million and loans to members of $180 million. Members' deposits totalled $735 million and the centrals made loans of $478 million to members during the year.

Supervision and direction

Co-operative wholesales provide certain supervisory services to local associations. Some have qualified auditors doing continuous audit for local co-operatives and making regular reports to boards of directors. They also help local co-operatives with their income-tax returns. The business affairs of some local co-operatives are managed under the direction of the wholesale.

Nearly all Canadian co-operatives are incorporated under provincial authority. Federal co-operative legislation only came into existence in 1970. A few co-operatives that operate in more than one province were set up under the Canada Corporations Act, or special acts in the years before the federal co-operative legislation was passed. There are ordinances governing organization of co-operatives in the Yukon and Northwest Territories.

The degree of supervision and guidance offered to co-operatives varies from province to province. In some provinces, the only government service to most types of co-operative is to ensure that they are properly incorporated and that the correct legal procedures are followed in amalgamations and dissolutions. In other provinces, the registrar of co-operative associations has a small staff, which assists co-operatives during organization and provides advisory services. The Saskatchewan and Manitoba governments have special departments to deal with co-operative matters. Provision of inspection and advisory services are among the main functions of these departments.

There is more supervision of credit unions and *caisses populaires* than of other co-operatives. In most provinces, each society is inspected by a government representative about once a year. In Ontario inspectors from the Credit Union League do about half this work. The inspector checks to see that the credit union is complying with the act and bylaws. He also looks for unsound management practices and other flaws that may impair the financial soundness of the credit union.

Co-operatives in Canada are generally subject to the same taxes as other business firms. However, under the Income Tax Act, patronage dividends paid by a business firm (including co-operatives) may, subject to certain restrictions, be deducted in computing income for income-tax purposes. Credit unions are exempt from income tax.

Education and promotion

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. The Co-operative Union of Canada, which celebrated its sixtieth anniversary in 1969, concentrates its efforts in English-speaking areas. Le Conseil Canadien de la Coopération serves the co-operatives in the areas where the French language predominates. Both are members of the International Co-operative Alliance, which has its headquarters in London, England.

Membership in the Co-operative Union includes 32 co-operative societies and provincial co-operative unions, the National Association of Canadian Credit Unions and the Co-operative Wholesale Society of Great Britain.

A few Canadian universities offer courses on co-operatives and some conduct extension work in this field. The most extensive program is offered by St. Francis Xavier University, Antigonish, Nova Scotia. Since the early 1930s, this university has carried on extension work in the Provinces of Nova Scotia, New Brunswick and Prince Edward Island to organize and assist co-operatives. In more recent years a variety of courses have been developed to train people in co-operation. Some of these are short courses for directors and managers of existing co-operatives and credit unions; others are offered for visitors from other countries who wish to learn about co-operatives in Canada. The Coady International Institute was set up at St. Francis Xavier University in 1960 to train students from abroad. The extension service of Memorial University in Newfoundland also sponsors short courses for co-operative members and foreign students.

To provide education and training in co-operative principles and methods for employees and directors, the Co-operative Institute was established in Saskatoon in 1955, under the sponsorship of the Co-operative Union of Saskatchewan. It has concentrated on short courses, often only one or two weeks long, for co-operative directors, managers and employees. In 1959, with support from co-operatives in the four Western provinces, the Co-operative Institute was reorganized as the Western Co-operative College. College buildings, including residences, were constructed in 1962

and additional residences were built in 1965, which together provide accommodations for 84 students. In Quebec, the insurance and finance co-operatives founded the Institut Coopératif Desjardins in 1963. The Institut specializes in social leadership and adult education for Quebec co-operators and foreign students. The large co-operatives also conduct educational programs to strengthen their own organizations and to stimulate interest in forming new co-operatives. The work of the Saskatchewan Wheat Pool in this area is particularly important; it has operated a broad educational program for many years.

A number of the larger co-operatives either publish or sponsor the publication of periodicals. Six of the larger publications — one in French — are bimonthly; others appear monthly in both languages. One weekly newspaper of general interest and one farm magazine are also sponsored by large co-operatives.

RP/A

APPENDIX I

Growth of Marketing and Purchasing Co-operatives in Canada, 1932-71

Crop year ended	Associations reporting	Marketing	Purchasing	Total business including other revenue [a]
		Thousand dollars		
1932	795	134,611	10,665	145,303
1941	1,395	215,030	24,895	242,158
1942	1,722	214,762	42,327	257,090
1943	1,650	295,499	55,689	352,785
1944	1,792	459,798	65,508	527,855
1945	1,824	500,481	81,360	585,650
1946	1,953	454,564	95,603	554,329
1947	2,095	578,638	127,001	712,583
1948	2,249	616,347	157,874	780,085
1949	2,378	783,293	191,804	982,232
1950	2,495	803,639	206,082	1,015,264
1951	2,348	769,264	209,985	988,459
1952	2,194	840,113	234,848	1,112,469
1953	2,221	874,698	245,629	1,147,590
1954	2,086	735,780	234,583	989,066
1955	1,949	704,047	228,446	941,377
1956	2,041	823,389	258,751	1,092,516
1957	2,022	817,601	283,730	1,116,002
1958	2,002	898,168	296,743	1,209,805
1959	1,982	963,330	332,943	1,315,167
1960	1,934	972,333	365,744	1,358,625
1961	1,914	1,019,819	391,761	1,430,197
1962	1,877	928,502	423,302	1,372,605
1963 [b]	1,583	1,100,200	489,000	1,617,900
1964	1,546	1,234,000	522,800	1,780,600
1965	1,495	1,201,700	549,400	1,774,600
1966	1,420	1,238,600	609,500	1,882,900
1967	1,357	1,372,800	681,400	2,091,000
1968	1,312	1,285,600	715,000	2,039,900
1969	1,244	1,231,900	721,400	1,995,600
1970	1,230	1,288,400	743,000	2,074,400
1971	1,210	1,403,100	819,000	2,266,400

[a] *Other revenue includes patronage rebates from co-operative wholesales, interest on investments, rental income, custom work, etc.*

[b] *Calendar year basis for 1963 and subsequent years.*

APPENDIX II

Volume of Business of Marketing and Purchasing Co-operatives in Canada, 1971

	thousand dollars	
Farm products		
Dairy products	412,700	
Fruits and vegetables	48,900	
Grains and seeds	627,400	
Livestock and products	235,400	
Poultry and eggs	61,300	
All other	17,400	1,403,100
Supplies		
Food products	271,600	
Feed	159,400	
Fertilizer and spray material	49,800	
Hardware and machinery	102,100	
Petroleum	127,300	
Building materials	45,000	
All other	63,800	819,000
Total sales		2,222,100
Service revenue		29,300
Other income		15,000
Total volume of business		2,266,400

APPENDIX III

Growth of Credit Unions and *Caisses Populaires* in Canada, 1946-66

Year	Credit unions and *caisses populaires*	Members	Members as a percentage of total population	Assets	Loans to members during year
				million dollars	
1946	2,422	688,739	5.6	188	53
1947	2,516	779,199	6.2	221	81
1948	2,608	850,608	6.6	254	90
1949 *a/*	2,819	940,427	6.9	282	100
1950	2,965	1,036,175	7.5	312	108
1951	3,121	1,137,931	8.1	359	125
1952	3,333	1,260,435	8.7	424	154
1953	3,606	1,434,270	9.7	489	203
1954	3,920	1,560,714	10.3	552	213
1955	4,100	1,731,328	11.1	653	260
1956	4,258	1,870,277	11.6	761	310
1957	4,349	2,059,835	12.4	846	345
1958	4,485	2,187,494	12.8	1,009	391
1959	4,570	2,360,047	13.5	1,158	473
1960	4,667	2,544,300	13.9	1,299	482
1961	4,682	2,740,251	14.9	1,509	579
1962	4,767	2,879,179	15.3	1,674	676
1963	4,809	3,123,735	16.6	1,920	771
1964	4,870	3,418,033	17.6	2,213	919
1965	4,939	3,677,291	18.6	2,542	1,078
1966	4,934	3,859,677	19.3	2,926	1,227
1967	4,911	4,308,439	21.0	3,367	1,323
1968	4,861	4,632,382	22.3	3,699	1,482
1969	4,769	4,968,802	23.5	4,064	1,526
1970	4,595	5,203,402	24.5	4,592	1,781
1971	4,444	5,454,292	25.1	5,588	2,463

a/ *Newfoundland included in 1949 and subsequent years.*

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In these and other special cases, the "do-it-yourself" feature of the 1971 census was set aside in favour of the traditional system of enumeration.

The Census Goes to School

A voluntary student-classroom project was introduced in 1971 to support the population census. Students in Grades 6 to 13 in 21 cities were asked to fill out a questionnaire relating to student interests and activities. To insure anonymity, no student's name or other identifying information appeared anywhere on the questionnaire.

The purpose of the project was to acquaint students with the importance of the census and its procedures. At the same time, it resulted in some statistics about students and their interests.

The questionnaire asked a few questions about time spent watching television, number of books read, newspaper reading, part-time jobs and students' views about why they should attend school.

Having used the self-census methods in this project, a student could give assistance at home if it was needed in completing the general population census. And when he faces the 1981 or 1991 census as a householder, he will at least know what this national quiz game is all about. As a future educator, businessman, politician or whatever, he will also know how the census can aid his plans and goals.

Why Self-Census?

Some years ago the search began for more efficient ways of collecting information.

Traditional door-to-door canvassing in 1971 would have involved calling on some six million households, staying at each long enough to record the answers to all the questions.

To complicate matters, both husbands and wives in hundreds of thousands of households are absent from home during the day because of the large increase in the number of working women. The number of "call-backs" to households that would have been necessary under the old method threatened to prolong the information-gathering process by many weeks, or even months.

The self-census technique not only helped meet this problem but produced other distinct advantages.

Under the old system, questions were sometimes misunderstood by the householder and answers misinterpreted by the enumerator. The result, in both cases: incorrect information.

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No. 59
(November 1972)

THE CENSUS OF CANADA

(Based on a booklet issued by Statistics Canada, Ottawa.)

The modern census originated in Canada. And Canada is still regarded as a world leader in many aspects of census-taking.

The word "census" comes from the Latin *censere* ("to assess"). In ancient days the word was apt, because the primary purpose was to collect taxes.

The Roman Empire made regular and frequent use of censuses for this purpose, as well as to list the names of men eligible for military service, to raise forced labour and to marshal the resources to finance the Empire.

Censuses today have nothing to do with assessment or taxation. A modern census is the complete listing or cataloguing of a people and many of the things that affect their lives. Censuses are taken to provide information about people so that governments, business and industry, social organizations and many other agencies can know more about the basic structure of our society as it is -- not as we hope or guess it might be.

The modern idea of a census originated in the middle of the seventeenth century. The year was 1666. The place was New France. The man who organized it was Jean Talon, the Great Intendant.

Talon's first census listed 3,215 persons, with details of age, sex, marital status and occupation. Two years later his census asked additional questions about livestock and cultivated property. In 1671 he took a census in Acadia. By 1754, 15 censuses had been taken in New France and Acadia. With each new census, questions were added about crops, buildings, churches, grist-mills, saw-mills, firearms and swords.

Upper Canada took its first census in 1824 -- and then conducted a census *annually* until 1842, the year of union with Lower Canada. The Act of Union required a census every five years. Meanwhile, censuses had been taken in New Brunswick in 1824, Assiniboia (later Manitoba) in 1831, and Prince Edward Island in 1841.

Under the British North America Act of 1867, a census was to be taken in 1871 and "every tenth year thereafter". This decennial census was extended to the territories and to new provinces as they joined Confederation.

In addition to the decennial census, a special agriculture and population census was taken in Manitoba in 1896 and extended to all three Prairie Provinces in 1906 to keep up with the rapid settlement of the West. This "mini" census continued every tenth year until 1956, when it was extended to the whole country. It has proved invaluable in updating population and agriculture statistics between major census periods and plans indicate it will be continued in 1976.

Thus the 1971 census crowned 100 years of national census-taking in Canada. And it was really threefold: A combined population and housing census; an agriculture census; a merchandising census.

The People and How They Live

The population and housing census is designed to tell how many people live in Canada, where they live and the kinds of homes they live in.

In 1971, every household received a questionnaire. Two out of three got a short form, requesting basic population data. They were asked to record the name, birth date, relationship, sex, marital status and mother tongue of each household member and to answer nine housing questions.

A longer questionnaire went to every third household. In addition to the basic questions, it asks for further information about housing and such matters as education, employment, migration and income.

This is known as "sampling" -- a technique that permits accurate conclusions about a whole society to be drawn from the replies of some of its members. For example, if the employed adults in the sample have an average income of $5,000, it is highly probable that the average for all adult Canadian workers will be very close to this figure, too.

The self-census and the sampling method applied to about 97 per cent of the population. The only exceptions were those living in remote parts of Canada, where geographical and other problems made it necessary to use traditional methods of door-to-door enumeration. All households in these localities were asked the full range of census questions.

Census Goes to the Farm

The farmer has a special responsibility in the census. He is asked not only to account for all the members of his household but also for his livestock, machinery and other aspects of his business.

It is a big and important job for the farmer. Canadian agriculture has been undergoing rapid change during the past 20 years or so. And in 1971 farm problems were more urgent and complex than ever.

Farm associations, co-operatives, marketing boards, businesses serving the farmer and local communities need good, up-to-the-minute statistics to do their job on the farmer's behalf. Provincial and federal government agencies use farm facts to assess the rapid changes in Canadian agriculture and to develop new programs to meet new needs.

The statistics compiled from the thousands of farms in Canada add up to a rich storehouse of information.

To collect these important facts, the census representative must get the forms to the farmer. Watch-dogs and unfriendly bulls -- to say nothing of mud up to the hub-caps -- do not deter the census staff from getting through.

Census Goes to the Businessman

Census representatives compiled a list of businesses in the retail, wholesale and service trades. Early the following year, each business received a detailed questionnaire for completion and return.

The information required is the kind readily available in business records covering financial activities in the census year. When the data have been compiled and analyzed, a lot more will be known about business -- the number and sales (or receipts) of business outlets, inventory, employment, salaries and wages -- and about business trends.

Is the corner store holding its own against the inroads being made by chains? Do department stores account for a greater share of the market for various commodities than do specialty stores? In what lines of goods are the markets increasing, decreasing or disappearing?

The answers to these questions provided a definitive picture of the value and trends of Canada's channels of distribution, from wholesaler to the final user -- the Canadian consumer.

Why Do You Ask That?

The intent and purpose of some census questions occasionally baffle people and cause comment. But there's a good reason for every one.

A special eyebrow-raiser is Question H9 on the 1971 questionnaire, which asks: "At what telephone number can this household be reached?"

Obviously, this is not a statistical question. But, with self-census procedures, where householders complete their own questionnaires and, in urban areas, post them back to the census office, it sometimes becomes necessary during processing to contact the householder to obtain missing information or clarify answers on the census form. A follow-up telephone call is quick, economical and more convenient to the householder than a personal visit. The telephone number is not retained as part of census information.

There are also questions as to whether plumbing facilities are used by one or more households. This information is important to housing authorities. It helps to indicate the standard of housing and thus assist in identifying areas that require urban renewal or redevelopment.

But why should the census-takers want to know whether a household owns a dishwasher, clothes dryer, deep-freezer, electric refrigerator, or a black or colour television set? There is more to this than giving an indication of living standards. These appliances use electricity or fuels. Energy producers need to know the likely trends of energy consumption. Manufacturers, distributors and retailers also require such statistics as a guide to production and marketing.

Census figures need to be carefully analyzed to produce meaningful information, as one Canadian salesman discovered back in the Thirties. Census figures for 1931 indicated that only a tiny percentage of homes in Northern Ontario communities were equipped with radios, compared to the rest of the province. It looked like a good territory in which to launch a sales campaign. He did and it failed miserably.

It didn't take him long to discover the reason. There were no radio stations that provided good reception in the area. Being an enterprising man, he quickly established one. Soon his radios were selling like hotcakes.

And that was the beginning of an amazingly successful career in the communications industry for the man who is now Lord Thomson of Fleet.

Selecting the Questions

Census information is so useful that individuals and organizations constantly suggest questions that they believe should be included.

One manufacturer thought it would be helpful if the questionnaire were to ask how many of the company's appliances were in each home. Such special-interest questions are always rejected. Only questions that will yield information useful to many Canadians are included.

Long before each census is taken, working groups and committees intensively discuss the questions to be recommended for inclusion. Representations are made by federal and provincial government agencies, businesses, universities, town-planning experts, financial institutions and many others.

Much time and thought goes into these recommendations. The final selection, which must be submitted to the federal Cabinet for ratification and approval, is made on the basis of the usefulness of a question, the cost involved in asking it, the relative difficulty of getting reliable answers, and the amount of effort it will take for the householder to provide the information.

Because of the recent emphasis on manpower-training programs, new questions were asked in 1971 about the time people devoted to vocational and occupational courses. Town-planners have long wanted to know where people lived in relation to where they worked, so this time the address of the place of work was included.

Other new questions included one on ownership of vacation homes. Forest industries, forest-product companies and agencies concerned with recreation will be greatly interested in the answers.

However, most of the questions for 1971 had been asked in the 1961 and earlier censuses. Indeed, some had been included in Canadian censuses since 1871.

At one time it was important to know the number of illiterates in Canada. With the coming of universal education, the illiteracy question asked in the earlier censuses was dropped after the 1931 census.

FOSDIC Goes to Work

A lot of work went into making the 1971 questionnaires as easy as possible to answer.

For example, apart from names, addresses, and phone numbers, most questions could be answered by using a black pencil (and even the pencil was supplied) to fill in a circle, like this -- "•".

Besides making it easier to fill in the questionnaire, this method made it easier to process the returns.

The first result of the 1971 census was paper -- millions of questionnaires, tons of paper. If it had not been for some amazing new machines, the Dominion Bureau of Statistics (now Statistics Canada) would have been smothered by paper work.

Instead, the paper was quickly processed into compact rolls of film. Every questionnaire was microfilmed by high-speed automatic cameras. Each roll of film recorded about 1,800 questionnaires.

The microfilm was then fed to FOSDIC (Film Optical Sensing Device for Input to Computers). This machine -- developed especially for census work -- can "read" the filled-in dots, which now are only tiny transparent specks on the negative microfilm.

At the rate of up to 500 questionnaire pages a minute, FOSDIC converts the census facts into electronic impulses on magnetic tape.

Using the Computer

The magnetic tapes produced by FOSDIC then feed into the computer's memory bank. Here the millions of facts about Canadians and how they live and work are tallied in large aggregate statistics.

Because of the advance of computer technology, this stored information can be organized and retrieved in a great variety of different tabulations.

For instance, try to stump the computer by asking it how many families with three children under five years of age rent six-room duplexes. If it has been programmed for such a tabulation, it can tell you the answer in an instant. Not actually "tell". Attached to the computer is a high-speed printer that reels off the required statistics at a furious pace.

Since the value of statistics depends on their being up to date, these speedy operations are invaluable for censuses. No longer is it necessary to wait years for some of the more vital pieces of census information to be tabulated, as was once the case. Timely statistics begin to flow soon after the census data have been processed.

Confidentiality Observed

People from other countries who study Canadian census methods frequently comment on the high degree of co-operation of Canadians with the census officials.

This helpfulness is not too surprising. Over the years the census has established thoroughly that it benefits Canadians in many ways. And it has also demonstrated that the answers given are kept in complete confidence.

This statement is included in a letter from Walter E. Duffett, Dominion Statistician, that accompanies census questionnaires:

The census of Canada is taken under the authority of the Statistics Act, which requires everyone to provide the information requested. The same Act guarantees that information you provide about yourself in your census questionnaire will be kept secret and used only to produce statistics. It ensures that no one will know what answers you gave except for DBS employees and they are subject to legal penalties if they disclose personal census information to anyone else.

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Behind this is the fact that the census is not interested in individuals as persons. It is interested in the facts they supply, but only in order that accurate data from families and individuals can be combined to produce statistics that can be obtained in no other way. Names, addresses and phone numbers are included on the questionnaire so that census field workers can make sure that everyone is included in the census, or can contact individuals in case any information has been missed.

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But here, as well, census secrecy applies. No other government department or agency and no police force is ever allowed to have census information concerning individuals. This information is kept on microfilm in Statistics Canada vaults under strict security.

Indeed, individual census information may not even be used in legal proceedings. This fact is so firmly established that courts no longer even try to get census information.

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Some live, work or operate a business in extremely isolated places -- in forests, on mountains and along isolated coasts. There are trappers, prospectors, Indians and Eskimos, as well as stores providing them with goods and services in remote areas.

Surprisingly, some of those who are hardest to count live in the centres of the biggest cities. These are people with no permanent address and transients who will be one place today and another tomorrow. The census officials try to account for them all by visiting rooming-houses and hotels.

Problems also exist in some city districts where people may have a limited knowledge of English or French. And sick and elderly people in hospitals and other institutions may need help in replying to census questions.

In these and other special cases, the "do-it-yourself" feature of the 1971 census was set aside in favour of the traditional system of enumeration.

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Some years ago the search began for more efficient ways of collecting information.

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To complicate matters, both husbands and wives in hundreds of thousands of households are absent from home during the day because of the large increase in the number of working women. The number of "call-backs" to households that would have been necessary under the old method threatened to prolong the information-gathering process by many weeks, or even months.

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Women in particular seem to be bashful about birthdays. And, despite reassurances about the complete secrecy of all census information, some men are reluctant to answer the question about income.

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The new procedures for the 1971 census had to be worked out in detail, tested "in the field", reworked, and tested again.

A first small field test for the 1971 census was held in Ottawa in December 1966. Then London, Ontario, had a complete test of self-enumeration in September 1967. This was followed by a test of 6,000 households in Toronto in June 1968, and another in four rural localities in October 1968.

The census officials were trying to discover which plans worked best under the actual conditions to be faced. Was it better to post questionnaires to each household and pick them up later or have the enumerator call with the questionnaires and have them mailed back?

And how should a particular question be phrased? Would it be better understood if it was worded one way or another? How to find out? Try both to test the results.

Based on the outcome of the earlier trials, "dress rehearsals" were held in September 1969, in Sherbrooke, Quebec, St. Catharines, Ontario, and Souris, Manitoba. These provided the experience from which the final plans were made.

Never before had such comprehensive advance testing been used. As early as the London test in 1967, it became clear that the great majority of Canadian householders could complete the census questionnaires without the assistance of enumerators.

Thus the scene was set for June 1, 1971.

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INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
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No. 59
(November 1972)

THE CENSUS OF CANADA

(Based on a booklet issued by Statistics Canada, Ottawa.)

The modern census originated in Canada. And Canada is still regarded as a world leader in many aspects of census-taking.

The word "census" comes from the Latin *censere* ("to assess"). In ancient days the word was apt, because the primary purpose was to collect taxes.

The Roman Empire made regular and frequent use of censuses for this purpose, as well as to list the names of men eligible for military service, to raise forced labour and to marshal the resources to finance the Empire.

Censuses today have nothing to do with assessment or taxation. A modern census is the complete listing or cataloguing of a people and many of the things that affect their lives. Censuses are taken to provide information about people so that governments, business and industry, social organizations and many other agencies can know more about the basic structure of our society as it is -- not as we hope or guess it might be.

The modern idea of a census originated in the middle of the seventeenth century. The year was 1666. The place was New France. The man who organized it was Jean Talon, the Great Intendant.

Talon's first census listed 3,215 persons, with details of age, sex, marital status and occupation. Two years later his census asked additional questions about livestock and cultivated property. In 1671 he took a census in Acadia. By 1754, 15 censuses had been taken in New France and Acadia. With each new census, questions were added about crops, buildings, churches, grist-mills, saw-mills, firearms and swords.

Upper Canada took its first census in 1824 -- and then conducted a census *annually* until 1842, the year of union with Lower Canada. The Act of Union required a census every five years. Meanwhile, censuses had been taken in New Brunswick in 1824, Assiniboia (later Manitoba) in 1831, and Prince Edward Island in 1841.

Under the British North America Act of 1867, a census was to be taken in 1871 and "every tenth year thereafter". This decennial census was extended to the territories and to new provinces as they joined Confederation.

In addition to the decennial census, a special agriculture and population census was taken in Manitoba in 1896 and extended to all three Prairie Provinces in 1906 to keep up with the rapid settlement of the West. This "mini" census continued every tenth year until 1956, when it was extended to the whole country. It has proved invaluable in updating population and agriculture statistics between major census periods and plans indicate it will be continued in 1976.

Thus the 1971 census crowned 100 years of national census-taking in Canada. And it was really threefold: A combined population and housing census; an agriculture census; a merchandising census.

The People and How They Live

The population and housing census is designed to tell how many people live in Canada, where they live and the kinds of homes they live in.

In 1971, every household received a questionnaire. Two out of three got a short form, requesting basic population data. They were asked to record the name, birth date, relationship, sex, marital status and mother tongue of each household member and to answer nine housing questions.

A longer questionnaire went to every third household. In addition to the basic questions, it asks for further information about housing and such matters as education, employment, migration and income.

This is known as "sampling" -- a technique that permits accurate conclusions about a whole society to be drawn from the replies of some of its members. For example, if the employed adults in the sample have an average income of $5,000, it is highly probable that the average for all adult Canadian workers will be very close to this figure, too.

The self-census and the sampling method applied to about 97 per cent of the population. The only exceptions were those living in remote parts of Canada, where geographical and other problems made it necessary to use traditional methods of door-to-door enumeration. All households in these localities were asked the full range of census questions.

Census Goes to the Farm

The farmer has a special responsibility in the census. He is asked not only to account for all the members of his household but also for his livestock, machinery and other aspects of his business.

It is a big and important job for the farmer. Canadian agriculture has been undergoing rapid change during the past 20 years or so. And in 1971 farm problems were more urgent and complex than ever.

Farm associations, co-operatives, marketing boards, businesses serving the farmer and local communities need good, up-to-the-minute statistics to do their job on the farmer's behalf. Provincial and federal government agencies use farm facts to assess the rapid changes in Canadian agriculture and to develop new programs to meet new needs.

The statistics compiled from the thousands of farms in Canada add up to a rich storehouse of information.

To collect these important facts, the census representative must get the forms to the farmer. Watch-dogs and unfriendly bulls -- to say nothing of mud up to the hub-caps -- do not deter the census staff from getting through.

Census Goes to the Businessman

Census representatives compiled a list of businesses in the retail, wholesale and service trades. Early the following year, each business received a detailed questionnaire for completion and return.

The information required is the kind readily available in business records covering financial activities in the census year. When the data have been compiled and analyzed, a lot more will be known about business -- the number and sales (or receipts) of business outlets, inventory, employment, salaries and wages -- and about business trends.

Is the corner store holding its own against the inroads being made by chains? Do department stores account for a greater share of the market for various commodities than do specialty stores? In what lines of goods are the markets increasing, decreasing or disappearing?

The answers to these questions provided a definitive picture of the value and trends of Canada's channels of distribution, from wholesaler to the final user -- the Canadian consumer.

Why Do You Ask That?

The intent and purpose of some census questions occasionally baffle people and cause comment. But there's a good reason for every one.

A special eyebrow-raiser is Question H9 on the 1971 questionnaire, which asks: "At what telephone number can this household be reached?"

Obviously, this is not a statistical question. But, with self-census procedures, where householders complete their own questionnaires and, in urban areas, post them back to the census office, it sometimes becomes necessary during processing to contact the householder to obtain missing information or clarify answers on the census form. A follow-up telephone call is quick, economical and more convenient to the householder than a personal visit. The telephone number is not retained as part of census information.

There are also questions as to whether plumbing facilities are used by one or more households. This information is important to housing authorities. It helps to indicate the standard of housing and thus assist in identifying areas that require urban renewal or redevelopment.

But why should the census-takers want to know whether a household owns a dishwasher, clothes dryer, deep-freezer, electric refrigerator, or a black or colour television set? There is more to this than giving an indication of living standards. These appliances use electricity or fuels. Energy producers need to know the likely trends of energy consumption. Manufacturers, distributors and retailers also require such statistics as a guide to production and marketing.

Census figures need to be carefully analyzed to produce meaningful information, as one Canadian salesman discovered back in the Thirties. Census figures for 1931 indicated that only a tiny percentage of homes in Northern Ontario communities were equipped with radios, compared to the rest of the province. It looked like a good territory in which to launch a sales campaign. He did and it failed miserably.

It didn't take him long to discover the reason. There were no radio stations that provided good reception in the area. Being an enterprising man, he quickly established one. Soon his radios were selling like hotcakes.

And that was the beginning of an amazingly successful career in the communications industry for the man who is now Lord Thomson of Fleet.

Selecting the Questions

Census information is so useful that individuals and organizations constantly suggest questions that they believe should be included.

One manufacturer thought it would be helpful if the questionnaire were to ask how many of the company's appliances were in each home. Such special-interest questions are always rejected. Only questions that will yield information useful to many Canadians are included.

Long before each census is taken, working groups and committees intensively discuss the questions to be recommended for inclusion. Representations are made by federal and provincial government agencies, businesses, universities, town-planning experts, financial institutions and many others.

Much time and thought goes into these recommendations. The final selection, which must be submitted to the federal Cabinet for ratification and approval, is made on the basis of the usefulness of a question, the cost involved in asking it, the relative difficulty of getting reliable answers, and the amount of effort it will take for the householder to provide the information.

Because of the recent emphasis on manpower-training programs, new questions were asked in 1971 about the time people devoted to vocational and occupational courses. Town-planners have long wanted to know where people lived in relation to where they worked, so this time the address of the place of work was included.

Other new questions included one on ownership of vacation homes. Forest industries, forest-product companies and agencies concerned with recreation will be greatly interested in the answers.

However, most of the questions for 1971 had been asked in the 1961 and earlier censuses. Indeed, some had been included in Canadian censuses since 1871.

At one time it was important to know the number of illiterates in Canada. With the coming of universal education, the illiteracy question asked in the earlier censuses was dropped after the 1931 census.

FOSDIC Goes to Work

A lot of work went into making the 1971 questionnaires as easy as possible to answer.

For example, apart from names, addresses, and phone numbers, most questions could be answered by using a black pencil (and even the pencil was supplied) to fill in a circle, like this -- "•".

Besides making it easier to fill in the questionnaire, this method made it easier to process the returns.

The first result of the 1971 census was paper -- millions of questionnaires, tons of paper. If it had not been for some amazing new machines, the Dominion Bureau of Statistics (now Statistics Canada) would have been smothered by paper work.

Instead, the paper was quickly processed into compact rolls of film. Every questionnaire was microfilmed by high-speed automatic cameras. Each roll of film recorded about 1,800 questionnaires.

The microfilm was then fed to FOSDIC (Film Optical Sensing Device for Input to Computers). This machine -- developed especially for census work -- can "read" the filled-in dots, which now are only tiny transparent specks on the negative microfilm.

At the rate of up to 500 questionnaire pages a minute, FOSDIC converts the census facts into electronic impulses on magnetic tape.

Using the Computer

The magnetic tapes produced by FOSDIC then feed into the computer's memory bank. Here the millions of facts about Canadians and how they live and work are tallied in large aggregate statistics.

Because of the advance of computer technology, this stored information can be organized and retrieved in a great variety of different tabulations.

For instance, try to stump the computer by asking it how many families with three children under five years of age rent six-room duplexes. If it has been programmed for such a tabulation, it can tell you the answer in an instant. Not actually "tell". Attached to the computer is a high-speed printer that reels off the required statistics at a furious pace.

Since the value of statistics depends on their being up to date, these speedy operations are invaluable for censuses. No longer is it necessary to wait years for some of the more vital pieces of census information to be tabulated, as was once the case. Timely statistics begin to flow soon after the census data have been processed.

Confidentiality Observed

People from other countries who study Canadian census methods frequently comment on the high degree of co-operation of Canadians with the census officials.

This helpfulness is not too surprising. Over the years the census has established thoroughly that it benefits Canadians in many ways. And it has also demonstrated that the answers given are kept in complete confidence.

This statement is included in a letter from Walter E. Duffett, Dominion Statistician, that accompanies census questionnaires:

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INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 59

(Revised October 1964)

JAN 6 1965

THE CENSUS OF 1961[xx]

Introduction

Once every ten years since Confederation, a census has been taken of the people of Canada. The first of these decennial censuses, as they are called, was taken in 1871; the tenth, on June 1, 1961. The latter was a project of the greatest magnitude, since its organization not only extended from the United States border to the most northerly settlements in the Arctic but from the east coast of Newfoundland to the islands off the coast of British Columbia.

The 1961 census was a census of population, housing, agriculture, and merchandising establishments. Its value in determining the progress of Canada is inestimable. Its uses are so varied that there is scarcely a phase of human activity that cannot be related to it. It is of aid to government, business, social welfare, justice and education. Its information being available to everyone, the census is thoroughly democratic in its results.

Historical Background

Claims to have taken the earliest census in the New World have been made for the Incas of Peru. Censuses were also taken by the Spaniards in 1548 in Peru, in 1576, in North America and again in Peru in 1606. Virginia had a census in 1635 and New York in 1698, and there were 36 other colonial censuses in what is now the United States before the first American decennial census in 1790.

To Canada belongs the credit of taking the first modern census. This was the census of the colony of New France in 1666, which was continued periodically until 1754. The census of 1666 was the first census on a name-by-name basis, taken for a fixed date by a personal canvass, showing age, sex, place of residence, occupation and conjugal condition of each person. It recorded a population of 3,215. When it is recalled that in Europe, and elsewhere in America the first modern censuses date only from the eighteenth century, the census of New France was a remarkable innovation.

During the French regime, censuses were taken no fewer than 37 times, and, in addition, nine partial censuses were made. Some of these obtained information on areas under cultivation and pasture, the production of wheat, barley, oats, peas, corn, flax, hemp and tobacco, the numbers of horses, cattle, sheep and swine, and the numbers of public buildings, churches, grist-mills, sawmills, fire-arms and swords.

[xx] This paper has been revised by the Census Division of the Dominion Bureau of Statistics.

After the British occupation, there were censuses at various times, but it was not until 1841 that the first Canadian Census Act was passed. Under this act, a census of Upper Canada was taken in 1842 and, in the following year, provision was made for a census of Lower Canada. A regular periodical census, to be taken every ten years, was initiated for the united provinces in 1851 and, since censuses were taken at the same time in 1851 and 1861 in Nova Scotia and New Brunswick respectively, the act of 1851 may be regarded as originating the present decennial census.

Three years after Confederation, an act was passed providing for "the first census in Canada to be taken in the year 1871". The census was to obtain, for the four provinces and each of the electoral districts and their divisions, statistics on population and population characteristics, housing, land, the valuation of real and personal property, agriculture, fisheries, lumbering, mining, manufacturing and other industries, and municipal, educational, charitable and other institutions. The Census Act of 1905 made provision for the quinquennial census of the Prairie Provinces, a step confirmed by the Statistics Acts of 1918 and 1948. It was under the authority of the Statistics Acts of 1918 and 1948 that the decennial censuses of 1921, 1931, 1941 and 1951 and the quinquennial censuses of the Prairie Provinces of 1926, 1936, 1946 and 1956 were taken; the tenth decennial census of 1961 was taken under authority of the Statistics Act of 1948 as amended in 1952.

Objects and Uses of the Census

The Canadian census is taken primarily to determine the representation of each of the provinces in the Federal House of Commons. The British North America Act of 1867 provided that, in respect of representation in the House of Commons, the Province of Quebec should have the fixed number of 65 Members and that there should be assigned to each of the other provinces such a number of Members as would bear the same proportion to the number of its population as the number 65 bears to the population of Quebec. This act also provided that, on the completion of a census in 1871 and of each subsequent decennial census, the representation of the several provinces should be adjusted from time to time using the formula of 1867.

This act was amended in 1946 to ensure that representation would be proportional to the population of each province. Representation was fixed as follows: The membership assigned to each province shall be computed by dividing the total population of the provinces by 254 and dividing the population of each province by the quotient so obtained. If the number of Members thereby assigned to a province should be less than the number of Senators for that province, then the number of Members of Parliament for that province is increased to equal its number of Senators.

The act was amended again in 1952. The effect is that the representation of any province shall not be reduced by more than 15 per cent at any one readjustment, subject, however, to the qualification that the representation of a province with a small population shall not be greater than any province with a larger population. Subsequently, Parliament enacted "an Act to readjust the Representation in the House of Commons, 1952", effective in the general election of 1953, which increased the representation to a total of 265 Members.

A second reason, of great importance from the provincial standpoint, is the fact that a number of the federal subsidies to the provinces are based on population. The original subsidies granted under the British North America Act were based on population, namely, those respecting government and legislation, debt allowance and the general per capita subsidy. Subsequently, the tax agreements entered into with eight of the provinces were predicated, amongst other things, on population increases in relation to other factors.

The census, however, has a far wider application than the fixing of representation and federal subsidies. Periodically, all businesses take inventory of what is on their shelves and in their storerooms, estimate the value of their plants and take stock of their financial position. The government equivalent of this procedure is the taking of the census. The primary asset is the population itself, not merely the number of people but the various attributes that collectively make the Canadian people different from those of other countries. Data about sex, age, occupation, origin, language, years of schooling, etc., are facts in themselves of the greatest moment. They constitute the background against which almost all other facts must be projected if the latter are to have any real significance. The well-being of the state, physical, moral and economic, can be apprehended and interpreted only through the medium of population statistics.

In the allocation of grants by provincial authorities for educational, health and other purposes, population figures for rural and urban divisions are required. Occupational statistics are useful to provincial authorities in setting up public health services, arranging for provincial highway development, etc. In many other ways the provincial authorities place reliance on census figures just as the Federal Government does.

Thus, the census supplies basic information necessary to government in directing the affairs of the Canadian people. By means of the census, government at all levels -- federal, provincial and municipal -- is enabled to work more effectively and economically. Without the census, legislation would be passed and administration carried on in the dark. There would be no adequate means of knowing whether the country was on the road to success or disaster, or what constituted the norm or standard of its progress in almost any particular.

The census also has its uses for the business man. It supplies him with information on the size and potentialities of the home market. It helps him to decide on the advisability of expansion and in what areas expansion is justified. It helps him to determine quotas for his salesmen. It shows him where the occupational skills he needs are to be found. It supplies the investment broker, the banker and other financiers with a variety of information that they need for sound appraisal of business developments and projects and of investment conditions and opportunities.

Boards of trade, chambers of commerce and public utilities are enabled to advise and assist civic and municipal authorities in community planning, locating new schools, determining new bus-routes, erecting new electric and other facilities, etc. They are also better prepared to point out to manufacturers and retailers the advantages of obtaining factory sites and sales outlets in their particular localities by being able to quote a disinterested authority on the labour market and the strength of local purchasing power.

Advertisers and radio-broadcasting companies can more cogently present their case for patronage by prospective customers when they can produce figures on the population characteristics, such as language, origin and religion, of the areas in which they operate.

There is, as a matter of fact, scarcely a branch of business activity -- manufacturing, selling or financing -- that does not have specific uses for census figures. They are as important to business as they are to government.

Census figures are also useful to schools of social work, social agencies and societies interested in the improvement of social conditions generally. They learn which areas are less prosperous than others and where family-income ranges and other factors are such that there is likely to be a greater need of their services.

Origin, language and religion figures are of value to church authorities in planning the location of new churches, church buildings and schools. Provincial and church authorities find schooling statistics useful in measuring the educational level of various parts of the country.

Teachers and students, authors and lecturers and many other private citizens write to the Bureau for population figures, and the United Nations and its agencies reproduce in statistical publications census material supplied by the Bureau.

Last, but not least, the individual Canadian citizen uses census statistics even though he may not be conscious of this. He does this in reading his newspaper, listening to his radio, scanning the advertisements and in many other ways.

Census Documents

Seven documents were used in the 1961 census. These dealt with (1) population, (2) housing, (3) agriculture, (4) irrigation, (5) livestock and greenhouses elsewhere than on farms, (6) farm woodland, and (7) merchandising and service establishments.

The population document had 26 questions that were to be asked of each person by the enumerator, who recorded the name, address, relation to head of household, age, sex, marital status, birthplace, citizenship or nationality, origin, language, religion, education, occupation and employment, etc., of every individual.

The housing document recorded for every fifth household such things as type of dwelling, number of dwelling units in the structure, condition of dwelling, number of rooms, water supply, heating and other facilities, tenure and monthly rent.

The general farm schedule of the census of agriculture recorded information about the farm operator; the location, area, tenure and value of the farm; field crops, fruits, greenhouses and nurseries; condition of the land; irrigation, new breaking and forest fires; farm machinery and equipment; employment; livestock; forest products; dairy products, etc. This schedule was drawn up in consultation with federal and provincial departments of agriculture and other agricultural authorities and in the light of suggestions made for a world census of agriculture by the Food and Agriculture Organization of the United Nations.

On the enumeration folio for the census of merchandising and service establishments, the enumerators entered details concerning the name, address, kind of business and relative sales-size classification of all retail, wholesale and service establishments. This provided a mailing record that served as a basis for the conduct of a mail-questionnaire survey early in 1962.

The irrigation schedule was applicable only to those sections of Canada where irrigation is an important aspect of the farm picture, and supplied basic data, for the government departments concerned, of the acreages affected and other relevant facts.

In connection with these somewhat elaborate and searching inquiries, three points should be emphasized:

(1) that no question was inserted merely to gratify idle curiosity but only because the resulting tabulation of the information has a distinct bearing on basic social or economic conditions;

(2) that census information obtained from or about an individual may not be used for taxation or military purposes; and

(3) that the answers given by the individual are absolutely confidential, every enumerator and all other employees of the Bureau being under oath not to reveal any single item about any individual under penalty of fine or imprisonment or both. (The Bureau itself is also forbidden by the Statistics Act of 1952 to issue any statement that would lay bare any personal matter. Though the name of every person is taken down by the enumerator, this is not for the purpose of associating the individual with any of the facts recorded but merely to serve as a check on the accuracy and completeness of the enumeration. The census is first and last for statistical purposes only. It should also be noted that enumerators are required to use courtesy and tact in collecting the information.)

Organization for Taking the Census

The Statistics Act of 1918 provided for the establishment of the Bureau of Statistics as a means of "organizing a scheme of co-ordinated social and economic statistics pertaining to the whole of Canada and to each of the provinces there".

The centralization of a major part of the statistical work of the Canadian Government under the Dominion Bureau of Statistics permits unified planning and integration of a comprehensive body of statistical information. The census data, produced by the Census Division, relate to the periodical statistical data produced by the Bureau in a vital and complementary way. Indices of economic activity became more meaningful when related to the characteristics of those persons who are engaged in the activity.

Considered as an administrative task and apart from the importance of its results, the census is one of the largest activities of the Government, both as to the extent of organization required for collecting the data and the magnitude of the operations involved in compiling, analysing and adapting these data to the many public and private uses for which they are designed.

The carrying out of this far-flung investigation and the reduction of its results to comprehensivle and usable form necessarily require a large organization. Its nucleus exists in a small permanent staff constituting one of the divisions of the Bureau of Statistics. This division maintains connection between censuses, so that experience is continuous and cumulative. This organization was expanded for the planning of the census by the creation of a Census Executive Committee, into which were drawn other senior officers of the Bureau with appropriate administrative or technical skills that served to complement the resources of the Bureau's Demography (Census) Division. The Executive Committee acted as the authority for establishing policy in all census matters. Nine separate committees with specific terms of reference presented reports recommending procedures for all technical, administrative and subject material matters. As decisions were made by the Executive Committee, the implementation of these decisions was undertaken by the staffs of Census Demography and other divisions of the Bureau.

Field Organization

Since one object of the census is to determine Parliamentary representation, the Act directs that census districts and subdistricts shall correspond respectively, "as nearly as may be, with the electoral divisions and subdivisions for the time being", i.e., with the federal constituencies and polling subdivisions.

In planning the field work, the electoral districts were grouped for administrative convenience into eight areas. Eight regional offices across Canada were responsible for census activities in their assigned areas.

Head Office Processing

The processing of the enumeration area material when it arrives in Ottawa is organized, directed and implemented by a permanent staff consisting of statisticians, technical officers, clerks, typists, machine operators. Members are assigned to various operations according to their field of experience in the Census Division and form the nucleus of an operating staff. In addition, a temporary staff is hired and trained to assist in stages of the operation. As in the regional offices, the processing consists of a series of operations following each other closely, permitting flexibility in the sizes of staff, who may be assigned and re-assigned according to the requirements of the different stages of the processing.

A number of steps are required to process the material when it arrives in Ottawa from the regional offices. Shipments must be received, registered and controlled at all times. The documents must be sorted into processing units and cut to the correct size. Information from the questionnaires is transferred to magnetic tape by means of the electronic "document reader" at the rate of 150 documents (up to 600 persons) a minute. The records are then decoded into computer language and edited for omissions, inconsistencies and impossible codes. If the percentage of errors is unacceptable, all the documents in the enumeration area must be reviewed, corrected and re-taped. The final tape is fed into the computer, which re-arranges and summarizes the data to produce the tabulated results.

As the individual tabulations are received from the computer, the staff of the Census Population, Housing, Occupations and Agriculture Units check, analyse and evaluate the results and assemble the information in a series of tables and reports for publication.

Publication Programme

The census publication programme is designed to make its statistical information readily available in the form in which it is most frequently wanted. The Publications Section of the Bureau maintains up-to-date mailing lists of users. This section also carries out the work involved in storing, packaging, mailing, invoicing and accounting the publications. There is a limited amount of free distribution to libraries, the press, certain government officials and co-operating organizations. The list of 1961 census publications contains some 225 titles, all of which are available at nominal cost. The Census Division and others within the Bureau frequently meet requests for statistical information not contained in its publications by the supply of data from its files. A charge based on the clerical time and machine processing involved is made for this service when it requires more than brief research and compilation.

The results of a census are issued in the form of individual reports as the information becomes available. The 1961 census reports comprise four main series and a preliminary series, as follows:

(1) Preliminary Series - This series performs a useful function in making population totals available to municipal and other authorities as soon after the taking of the census as possible. These figures are not final and are subject to revision, but they can be compared with local estimates and differences investigated before the release of final census counts.

(2) Advance Series - This provides information on basic topics for which there is a wide demand, and is published earlier than the regular series. The data provided are final, but the figures issued are in a summarized form.

(3) Volume Series - Reports in this series represent the main results of the census and are issued in several series of offset-printed reports. The reports are prepared in such a way that, by the removal of the covers, the tables can be placed in a loose-leaf binder or bound in volume form. Users can combine the contents to form the subject matter of each volume.

(4) Census Tract Series - Basic population and housing data are issued for each of the larger cities according to census tracts. These tracts represent areas of approximate uniformity in population, size and composition, and provide statistical units designed to allow social and economic comparisons. Each report contains an index map outlining the locations of the census tracts within the particular city or metropolitan area.

(5) Special Series - This series contains basic materials not included in the regular Volume Series. The information relates for the most part to more detailed geographical areas, for which there is less demand.

International Programmes

In a co-operative programme co-ordinated by the Inter-American Statistical Institute, of which Canada is a member, 22 countries have been working to gather economic and social data about the inhabitants of North and South America. In order to compare the statistics of various countries, a limited programme has been accepted by all involving the use of basic minimum standards underlying census questions, definitions and published results. Canada has provided technical advice and assistance in establishing this programme.

Canada has also contributed the services of experts in the development and implementation of projects sponsored by such bodies as the Economic and Social Council of the United Nations, the United Nations Population and Statistical Commissions, the Food and Agriculture Organization and the International Labour Office. While census information in itself cannot yield the solution of the many problems concerned with social and economic welfare that confront the United Nations, these statistical data furnish a basis to which many other facts can be related and by which they can be appraised.

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No. 61
(Revised October 1973)

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THE NATIONAL RESEARCH COUNCIL OF CANADA

(Prepared by the Public Information Branch, National Research Council of Canada, Ottawa.)

The National Research Council of Canada has the broad mandate of fostering and supporting scientific and industrial research in Canada. The NRC Act assigns but does not limit NRC to the following functions: improvement of the use of Canada's natural resources; improvement of technical methods and processes employed in Canadian industry; maintenance and improvement of the primary physical standards of measurement for Canada; setting of standards of quality for material used in public works; standardization of scientific and technical apparatus used in Canadian industry and government; fostering the carrying-out of scientific and industrial research.

The mandate of NRC is implemented mainly through: operation of research laboratories; financial assistance for research activities in Canadian universities; financial assistance and promotion of research in industry; operation of the National Science Library and the Technical Information Services.

The Federal Government has designated the National Research Council as the co-ordinating body for the further development of a national scientific and technical information system (STI), under the general direction of the National Librarian. The integrated national system, encompassing the natural sciences and engineering, will be decentralized and based on the existing resources and systems in industry, the universities and government, all linked together. On April 1, 1970, the Government announced that federal research in astronomy would be consolidated under NRC. The Council is now responsible for the operation of the Dominion Astrophysical Observatory, Victoria, British Columbia, and the Dominion Radio Astrophysical Observatory, Penticton, B.C. Also involved in the transfer were the Time Service of Canada, the solar and meteor programs of the Dominion Observatory in Ottawa and the Meteorite Observation and Recovery Project, which is a network of photographic stations with headquarters in Saskatoon, Saskatchewan.

Since its inception, the Council has encouraged and supported research in Canadian universities. A system of postgraduate scholarships and postdoctorate fellowships is provided for the assistance of students (Canadians and landed immigrants) who have

shown promise of research ability. The awards are: postdoctorate fellowships; postgraduate scholarships; bursaries; 1967 Science Scholarships; and postgraduate scholarships in science, librarianship and documentation. Awards are for advanced studies and/or research in science and engineering, and are competitive, academic excellence being the main criterion in the selection of successful candidates.

In addition to the support provided for research in Canadian universities, the Council now has a postdoctorate program for the support of research in Canadian industry, which was introduced in 1970. These grants are intended to encourage highly-qualified science and engineering students to seek careers in industry.

Postdoctorate fellowships and industrial postdoctorate fellowships are awarded to candidates who have recently completed or who are about to complete their requirements for a doctorate degree. The purpose of the two programs is to enable those who have received a doctorate degree to undertake, before becoming permanently employed, postdoctoral research for up to two years after receiving their degrees. Postdoctorate fellowships are tenable in Canadian universities and in universities and other institutions abroad. Industrial postdoctorate fellowships are tenable in industrial organizations in Canada.

Postgraduate scholarships are awarded for tenure in Canada; successful candidates may elect to carry out their programs at the Canadian universities of their choice. Although these awards are intended for tenure in Canada only, a successful candidate for whom facilities for a Ph.D. program are limited or lacking in Canada may receive special NRC permission to hold his scholarship at a university abroad.

The Council modified the program in 1970, and the winner of an award for a first year of graduate study now has the option of deferring tenure of his scholarship for up to two years to encourage him to investigate career opportunities in industry.

Bursaries are awarded to students nominated by universities. Canadian universities receive an annual quota of bursaries from the National Research Council and are responsible for the selection of students for these awards. Unlike postgraduate scholarships, bursaries are not transferable; tenure must be at the university that nominated the student for the award.

The 1967 Science Scholarship Program was introduced in 1967 to celebrate the centennial of Canadian Confederation and the fiftieth anniversary of the National Research Council. These awards are intended to encourage young men and women of outstanding intellectual promise to pursue postgraduate studies and research leading to doctorate degrees. They are also meant to stimulate exchanges of students between different cultural and geographical regions in Canada. Scholars must select for graduate studies universities other than those from which their first degrees were obtained.

Postgraduate scholarships in science librarianship and documentation were introduced in 1967 with the object of encouraging graduates with degrees in science or engineering to become science librarians, documentalists or science-information specialists in an effort to meet the demand by universities, research laboratories, industrial firms and related organizations for properly-qualified persons in these fields.

NRC also offers awards for the support of research carried out by staff members of Canadian universities. The fields of science supported through National Research Council awards to university researchers include agriculture, astronomy, biology, chemistry, computing and information science, engineering, geography (physical), geology, geophysics, mathematics, metallurgy, meteorology, oceanography and limnology, physics, space research and certain areas of psychology.

Under its program of awards to university staff, the National Research Council offers the following types of grant:

University grants

Operating Grants, awarded on an annual or three-year basis to individual researchers at Canadian universities as contributions towards the normal operating costs of their research projects. Grant funds may be used to employ assistants, to purchase minor equipment, materials and supplies, and to help defray the costs of computing services, field trips and other limited travel.

Special Computing Grants, awarded at the discretion of NRC to researchers whose computing requirements justify expenditures that are large in comparison with other operating expenses. Special computing grants are intended to pay for machine-time only, and computing costs will, in most cases, be included as an expenditure for payment from operating grant funds.

Equipment Grants, provided to assist in the purchase of special research equipment or installations (either single items or parts that, when assembled, form a unit) costing in excess of $5,000.

Travel Fellowships, intended to defray the travel expenses of established scientists at Canadian universities who wish to spend a period of at least six months at laboratories other than their own.

Conference Grants. In general, it is expected that conferences and symposia should be self-supporting. However, a limited number of Conference Grants are awarded each year to contribute towards the costs involved in bringing invited speakers to scientific meetings held in Canada. Grants are made to Canadian institutions or organizations, usually universities, but are not available for summer schools or meetings of a purely local nature.

Senior Industrial Fellowships, a new award introduced in 1971 as a further means of encouraging collaboration between Canadian universities and industries. Fellowships are awarded to enable staff members of Canadian universities to spend a year or more with industrial organizations in Canada. The award provides for payment of a component of the fellow's salary and travel expenses where appropriate.

The E.W.R. Steacie Memorial Fellowship, in memory of E.W.R. Steacie, President of the National Research Council of Canada from 1952 to 1962. The Council in March 1963 established the E.W.R. Steacie Memorial Fellowship. It is awarded to an outstanding young researcher working in one of the fields of science supported by NRC, whose development could be vitally changed by relieving him of teaching or other duties and permitting him to devote all his time and energy to research for a period of two to three years. Provided that there is a suitable candidate, one award is made each year, for tenure at a Canadian university.

Negotiated Grants provide a means whereby the Council and a Canadian university may share in the cost of initiating or developing research in areas of significance to the scientific, regional, economic or resources development of the country. Negotiated Grants may take the form of grants to assist in the cost and installation of special scientific equipment, or development grants to assist groups of capable and highly-motivated researchers to undertake programs in new or inter-disciplinary areas of research, or generally in circumstances warranting an intensification of research effort of high potential or realized scientific merit.

In addition, some basic type of support has been provided, following annual review in each case, towards the costs involved in maintaining and operating a number of installations in nuclear and high-energy physics, and in space research and astronomy. A

similar arrangement has been made to assist in the operation of certain institutes or research centres. This type of support was awarded on an *ad hoc* basis, and is currently under review.

Special Project Grants/Project Research Applicable in Industry. These are new grants, developed within the framework of the Negotiated Grant Program, to support research that will make significant contribution to developments in Canadian industry. Proposals from university researchers must be of direct interest to particular industrial firms and awards will be made to accomplish specific objectives that will result in the transfer of research results from university laboratory to industry.

General Research Grants, awarded annually to the executive head of each Canadian university at which a program of postgraduate studies and an appreciable volume of research supported by NRC operating grants are being carried on. The funds provided through these grants may be used by the university president as he sees fit for the broad purpose of promoting scientific research in the fields supported by the Council's awards program.

NRC laboratories

The National Research Council has nine laboratories, dealing with biological sciences, building research, chemistry, mechanical engineering, aeronautical research, radio and electrical engineering and physics, as well as the Atlantic Regional Laboratory in Halifax, Nova Scotia, and the Prairie Regional Laboratory in Saskatoon, Saskatchewan.

These laboratories carry out long-term, applied and specific project research work in areas for which commercial companies have neither sufficient money nor facilities. The results of research are disseminated through NRC publications, which provide an international distribution for scientific information coming out of Canadian laboratories and institutes. Laboratory inventions are patented and made available to Canadian manufacturers.

A *Division of Biological Sciences* has been formed by amalgamation of the Biochemistry Laboratory and the Division of Biology. This union provides greater flexibility and increased resources for achieving an integrated approach to significant biological problems. Many groups have collaborative projects with scientists in universities, industries and other governmental agencies.

The provision of a comprehensive research service for the Canadian construction industry is the primary concern of the *Division of Building Research*. It also serves as the technical research wing

of Central Mortgage and Housing Corporation and, in addition, provides technical and secretarial support to the Associate Committee on the National Building Code.

The Division of Chemistry is concerned with supplying new scientific information for the development of Canada's natural resources and chemical industries. The work of the Division also consists of long-term fundamental investigations in organic, physical and theoretical chemistry designed to provide new basic knowledge.

The Division of Mechanical Engineering works in certain areas of hydraulic and mechanical engineering and naval architecture.

The National Aeronautical Establishment studies aeronautical research problems related to defence and civil aviation, working in co-operation with the Canadian aircraft industry. It also carries out its own research program.

The work of the *Radio and Electrical Engineering Division* includes engineering projects of interest to Canadian industry and fundamental research in electrical science. An Astrophysics Branch was created in 1970 for the purpose of co-ordinating the work of the various groups engaged in astronomical and related research.

The work of the *Division of Physics* is divided between research in areas of physics considered most likely to contribute in a practical way to the Canadian economy and research directed toward the improvement of the accuracy and precision of fundamental physical standards, on which all measurements are based. The Division also pursues work on fundamental problems that has no immediate application but advances the frontiers of knowledge and supplies the basis for further progress in the applied fields.

The *Atlantic Regional Laboratory* is engaged in practical and fundamental studies in chemistry and biology related to the resources and industries of the Atlantic Provinces.

One of the aims of the *Prairie Regional Laboratory* is to develop wider uses for crops grown on the Prairies by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs.

Other units

The function of the *Space Research Facilities Branch* is to develop and provide facilities to meet the needs of the upper-atmosphere and space-research programs of Canadian scientists in universities and government agencies.

The *Administrative Services Branch* provides administrative, management and plant-engineering services for the entire organization. There are also a financial services office, an administrative planning service, an Office of the General Counsel, and a Computation Centre.

Serving Canadian science generally are the National Science Library of Canada, the Technical Information Service, and the Liaison Office in London.

The *National Science Library* provides communication services of many kinds to the scientific and industrial communities of Canada, based on one of the world's outstanding collections on science and technology. In addition, it has cable links with other centres throughout the world to expand its scope of reference material. The Library makes available English and French translations of foreign scientific and technical papers prepared in all parts of the world.

The *Technical Information Service* provides Canadian industry with scientific and technical data on materials, processes and equipment, as well as on industrial engineering problems. The Service also administers the NRC Industrial Research Assistance Program, which stimulates and promotes industrial research in Canadian manufacturing industries.

The National Research Council publishes ten primary-research journals, on biochemistry, botany, chemistry, earth sciences, geotechnology, microbiology, physics, physiology and pharmacology, zoology, and forest research. Original research papers are published by these journals in either French or English.(1)

NRC maintains a scientific liaison office in London, England, for the exchange of scientific information. The Council has a scientific exchange agreement with the Soviet Academy of Sciences that provides for visits of scientists lasting from three weeks to nine months; it has also accepted responsibility for exchange of Canadian scientists with France under the cultural agreement between the Government of Canada and France. An agreement on scientific exchanges has also been concluded with Brazil.

Canadian Patents and Development Limited, a subsidiary of NRC, patents and licenses new products and processes that come out of research by NRC, other government departments and agencies, and Canadian universities. CPDL initiates and finances the development of many inventions to a stage where it becomes economically possible for private industry to carry them through to production and sale, thus bridging the gap between research and industry.

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(1) Instructions to contributors to these journals may be obtained by writing to: Editorial Department, National Research Council of Canada, Ottawa, K1A OR6, Canada. A charge of $20.00 a page must be paid on all papers reporting work done outside Canada.

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THE NATIONAL RESEARCH COUNCIL OF CANADA

(Prepared by Information Services Office, National Research Council of Canada, Ottawa 7, Ontario.)

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The mandate of NRC is implemented mainly through: operation of research laboratories; financial assistance for research activities in Canadian universities; financial assistance and promotion of research in industry; operation of the National Science Library and the Technical Information Services.

The Federal Government has designated the National Research Council as the co-ordinating body for the further development of a national scientific and technical information system (STI), under the general direction of the National Librarian. The integrated national system, encompassing the natural sciences and engineering, will be decentralized and based on the existing resources and systems in industry, the universities, and government, all linked together.

On 1 April, 1970, the Government announced that federal research in astronomy would be consolidated under NRC. The Council is now responsible for the operation of the Dominion Astrophysical Observatory, Victoria, British Columbia, and the Dominion Radio Astrophysical Observatory, Penticton, B.C. Also involved in the transfer are the Time Service of Canada, the solar and meteor programs of the Dominion Observatory in Ottawa, and the Meteorite Observation and Recovery Project, which is a network of photographic stations with headquarters in Saskatoon, Saskatchewan.

Since its inception, the Council has encouraged and supported research in Canadian universities. A system of postgraduate scholarships and post-doctorate fellowships is provided for the assistance of students (Canadians and landed immigrants) who have shown promise of research ability. The awards are: postdoctorate fellowships; postgraduate scholarships; bursaries; 1967 Science Scholarships; post-industrial experience research (PIER) fellowships; and postgraduate scholarships in science, librarianship and documentation. Awards are for advanced studies and/or research in science and engineering and are competitive, academic excellence being the main criterion in the selection of successful candidates.

In addition to the support provided for research in Canadian universities, the Council now has a postdoctorate program for the support of research in Canadian industry, which was introduced in 1970. These industrial postdoctorate fellowships are intended to encourage highly-qualified science and engineering students to seek careers in industry.

Postdoctorate fellowships and industrial postdoctorate fellowships are awarded to candidates who have recently completed or who are about to complete their requirements for a doctorate degree. The purpose of the two programs is to enable those who have received a doctorate degree to undertake, before becoming permanently employed, postdoctoral research for up to two years after receiving their degree. Postdoctorate fellowships are tenable in Canadian universities and in universities and other institutions abroad. Industrial postdoctorate fellowships are tenable in industrial organizations in Canada.

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The Council modified the program in 1970, and the winner of an award for a first year of graduate study now has the option of deferring tenure of his scholarship for up to two years to encourage him to investigate career opportunities in industry.

Bursaries are awarded to students nominated by universities. Canadian universities receive an annual quota of bursaries from the National Research Council and are responsible for the selection of students for these awards. Unlike postgraduate scholarships, bursaries are not transferable; tenure must be at the university that nominated the student for the award.

The 1967 Science Scholarship Program was introduced in 1967 to celebrate the centennial of Canadian Confederation and the fiftieth anniversary of the National Research Council. These awards are intended to encourage young men and women of outstanding intellectual promise to pursue postgraduate studies and research leading to doctorate degrees. It is intended that they should stimulate exchanges of students between different cultural and geographical regions in Canada. Scholars must select for graduate studies universities other than those from which their first degrees were obtained.

Post-industrial experience research (PIER) fellowships were introduced in 1966 with the object of providing an opportunity for persons with industrial experience to gain additional research experience and training. A number of these awards are made available each year to candidates who have had a minimum of five years industrial experience.

Postgraduate scholarships in science librarianship and documentation were introduced in 1967 with the object of encouraging graduates with degrees in science or engineering to become science librarians, documentalists or science information specialists in an effort to meet the demand by universities, research laboratories, industrial firms and related organizations for properly qualified persons in these fields.

NRC Laboratories

The National Research Council has ten laboratories, dealing with biochemistry, biology, building research, chemistry, mechanical engineering, aeronautical research, radio and electrical engineering, physics, as well as the Atlantic Regional Laboratory in Halifax, Nova Scotia, and the Prairie Regional Laboratory in Saskatoon, Saskatchewan.

These laboratories carry out long-term, applied and specific project research work in areas for which commercial companies have neither sufficient money nor facilities. The results of research are disseminated through NRC publications, which provide an international distribution for scientific information coming out of Canadian laboratories and institutes. Laboratory inventions are patented and made available to Canadian manufacturers.

The *Biochemistry Laboratory* is concerned with enzymes and protein chemistry, immuno-chemistry, cell biochemistry, and syntheses of biochemical compounds. Individual scientists can and do participate in experiments in more than one of these lines of research as overlapping and collaborative interests develop. The underlying purpose is to explain the biological activity and function of substances in terms of chemical structures.

The *Biology Laboratory* conducts programs of pure and applied research in animal physiology, cytology, food technology, mathematics and radiation biology.

The provision of a comprehensive research service for the Canadian construction industry is the primary concern of the *Division of Building Research*. It also serves as the technical research wing of Central Mortgage and Housing Corporation and, in addition, provides technical and secretarial support to the Associate Committee on the National Building Code.

The *Division of Chemistry* is concerned with supplying new scientific information for the development of Canada's natural resources and chemical industries. The work of the Division also consists of long-term fundamental investigations in organic, physical and theoretical chemistry designed to provide new basic knowledge.

The *Division of Mechanical Engineering* works in certain areas of hydraulic and mechanical engineering and naval architecture.

The *National Aeronautical Establishment* studies aeronautical research problems related to defence and civil aviation, working in co-operation with the Canadian aircraft industry; it also carries out its own research program.

The work of the *Radio and Electrical Engineering Division* includes engineering projects of interest to Canadian industry and fundamental research in electrical science.

The work of the *Division of Physics* is divided between research in areas of physics considered most likely to contribute in a practical way to the Canadian economy and research directed toward the improvement of the accuracy and precision of fundamental physical standards, on which all measurements are based. The Division also pursues work on fundamental problems that have no immediate application but advance the frontiers of knowledge and supply the basis for further progress in the applied fields.

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Serving Canadian science generally are the National Science Library of Canada, the Technical Information Service, and the Liaison Office in London.

The *National Science Library* provides communication services of many kinds to the scientific and industrial communities of Canada, based on one of the world's outstanding collections on science and technology. In addition, it has cable links with other centres throughout the world to expand its scope of reference material. The Library makes available English and French translations of foreign scientific and technical papers prepared in all parts of the world.

The *Technical Information Service* provides Canadian industry with scientific and technical data on materials, processes and equipment, as well as on industrial engineering problems. The Service also administers the NRC Industrial Research Assistance Program, which stimulates and promotes industrial research in Canadian manufacturing industries.

The National Research Council publishes nine primary research journals, on biochemistry, botany, chemistry, earth sciences, geotechnology, microbiology,

physics, physiology and pharmacology, and zoology. Original research papers are published by these journals in either French or English.(1)

NRC maintains a scientific liaison office in London, England, for the exchange of scientific information. The Council has a scientific exchange agreement with the Soviet Academy of Sciences that provides for visits of scientists lasting from three weeks to nine months; it has also accepted responsibility for exchange of Canadian scientists with France under the Cultural Agreement between the Government of Canada and France. An agreement on scientific exchanges has also been concluded with Brazil.

Canadian Patents and Development Limited, a subsidiary of NRC, patents and licenses new products and processes that come out of research by NRC, other government departments and agencies, and Canadian universities. CPDL initiates and finances the development of many inventions to a stage where it becomes economically possible for private industry to carry them through to production and sale, thus bridging the gap between research and industry.

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(1) Instructions to contributors to these journals may be obtained by writing to: Editorial Department, National Research Council of Canada, Ottawa 7, Canada. A charge of $20.00 a page must be paid on all papers reporting work done outside Canada.

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CANADA

REFERENCE PAPERS

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 61

(Revised April 1969)

THE NATIONAL RESEARCH COUNCIL OF CANADA

The National Research Council has the broad mandate of fostering and supporting scientific and industrial research in Canada. The NRC Act assigns to the Council, but does not limit it to, the following functions:

(1) Employment of Canada's natural resources;

(2) improvement of technical methods and processes used in Canadian industry;

(3) maintenance and improvement of the primary physical standards of measurement for Canada;

(4) setting of standards of quality for material used in public works and standardization of scientific and technical apparatus used in industry and government;

(5) fostering the carrying-out of scientific and industrial research.

The mandate of NRC is implemented mainly through:

(1) Operation of research laboratories;

(2) financial assistance for research activities in Canadian universities;

(3) financial assistance and promotion of research in industry;

(4) operation of the National Science Library and the Technical Information Services.

Membership of NRC

The National Research Council of Canada, under the National Research Council Act, consists of the President, the Vice-President (Administration), two Vice-Presidents (Scientific) and not more than 17 other members appointed by the Governor in Council. The Council is a body corporate and is required to meet at least three times a year.

The Council is responsible to a designated minister, who is a member of the Committee of the Privy Council on Scientific and Industrial Research. The Honourable C.M. Drury, President of the Treasury Board, is the present Minister reporting to Parliament for the Council. Except for the four permanent officers, Council members are appointed for a term of three years and serve without salary. Council members are drawn from the senior staff of universities, industry and labour in the effort to achieve a broad base of advice, both as to scientific discipline and regional representation.

Over the years, the executive responsibilities of the statutory Vice-Presidents had become too diffuse and onerous, particularly with the rapid growth of a number of areas of activity. Accordingly, it was considered necessary to institute a more functional organization, with five positions at the vice-presidential level, each with a more clearly defined focus in terms of operational responsibility. Besides providing for improved day-to-day operations, this will give greater opportunity for generation and consideration of policy questions by the executive.

The following appointments have been made recently:

President	W.G. Schneider
Vice-President (Scientific)	R.D. Hiscocks
Vice-President (Scientific)	D.J. LeRoy (effective 1 July 1969)
Vice-President (Administration)	K.F. Tupper
Délégué Général	L.G. Cook
Executive Director (Laboratories)	D.W.R. McKinley

The Délégué Général is responsible for programme analysis and review, research policies and planning. One Vice-President (Scientific) is responsible for industrial research assistance and promotion and the other for the Council's awards programme for support of university research. The Executive Director (Laboratories) is responsible for intramural laboratory research operations; and the Vice-President (Administration) for financial and personnel management, with administrative responsibility for administration and research services and for technical information services.

Responsible to the President are an Executive Assistant, Dr. J.R.G. Keyston, the Secretary of the Council, Mr. B.D. Leddy, and the Chief of Information Services, Mr. René Montpetit.

NRC Laboratories

The National Research Council has ten laboratories, dealing with biochemistry, biology, building research, applied chemistry, pure chemistry, mechanical engineering, aeronautical research, radio and electrical engineering, applied physics and pure physics, as well as the Atlantic Regional Laboratory in Halifax, Nova Scotia, and the Prairie Regional Laboratory in Saskatoon, Saskatchewan.

These laboratories carry out long-term, applied and specific project research work in areas for which commercial companies have neither sufficient money nor facilities. Results of research are disseminated through NRC publications which provide an international distribution for scientific information coming out of Canadian laboratories and institutes. Laboratory inventions are patented and made available to Canadian manufacturers.

The Biochemistry Laboratory is concerned with enzymes and protein chemistry, immuno-chemistry, cell biochemistry, and syntheses of biochemical compounds. Individual scientists can and do participate in experiments in more than one of these lines of research, as overlapping and collaborative interests develop. The underlying purpose is to explain the biological activity and function of substances in terms of chemical structures.

The Biology Laboratory conducts programmes of pure and applied research in animal physiology, cytology, food technology, mathematics, and radiation biology.

The provision of a comprehensive research service for the Canadian construction industry is the primary concern of the Division of Building Research. It also serves as the technical research wing of Central Mortgage and Housing Corporation and, in addition, provides technical and secretarial support to the Associate Committee on the National Building Code.

The Division of Applied Chemistry is concerned with supplying new scientific information for the development of Canada's natural resources and chemical industries.

The work of the Division of Pure Chemistry consists of long-term fundamental investigations in organic, physical and theoretical chemistry designed to provide new basic knowledge.

The Division of Mechanical Engineering works in certain areas of hydraulic and mechanical engineering and naval architecture.

The National Aeronautical Establishment studies aeronautical research problems related to defence and civil aviation, working in co-operation with the Canadian aircraft industry; it also carries out its own research programme.

The work of the Radio and Electrical Engineering Division includes engineering projects of interest to Canadian industry and fundamental research in electrical science.

The work of the Division of Applied Physics is divided between research in areas of physics considered most likely to contribute in a practical way to the Canadian economy and research to improve the accuracy and precision of fundamental physical standards on which all measurements are based.

In the Division of Pure Physics, work is pursued on fundamental problems that have no immediate application but advance the frontiers of knowledge and supply the basis for further progress in the applied fields.

The Atlantic Regional Laboratory is engaged in practical and fundamental studies in chemistry and biology which are related to the resources and industries of the Atlantic Provinces.

One of the aims of the Prairie Regional Laboratory is to develop wider uses for crops grown on the prairies by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs.

Other Units

The function of the Space Research Facilities Branch is to develop and provide facilities to meet the needs of the upper-atmosphere and space-research programmes of Canadian scientists in universities and government agencies.

The Division of Administration and Personnel provides administrative, management and plant-engineering services for the entire organization. There are also a financial services office, an administrative planning service, and an office of the General Counsel.

Serving Canadian science generally are the Council's Awards Office, the National Science Library of Canada, the Technical Information Service, and the Liaison Office in London.

The grants-in-aid and scholarships programme is administered by the Awards Office for the support of students and professors in Canadian universities working in various fields of science and engineering. Funds are also provided to the universities for the installation of major items of equipment, and for general research expenditures.

The National Science Library provides communication services of many different kinds to the scientific and industrial communities of Canada, based on one of the world's outstanding collections on science and technology. In addition, it has cable links with other centres throughout the world to expand its scope of reference material. The Library makes available English and French translations of foreign scientific and technical papers prepared in all parts of the world.

The Technical Information Service provides Canadian industry with scientific and technical data on materials, processes and equipment, as well as on industrial engineering problems. The Service also administers the NRC Industrial Research Assistance Programme, which stimulates and promotes industrial research in Canadian manufacturing industries.

The National Research Council of Canada publishes nine primary research journals in the fields of biochemistry, botany, chemistry, earth sciences, geotechnology, microbiology, physics, physiology and pharmacology, and zoology. Original research papers are published by these journals in either French or English. (Instructions to contributors to these journals may be obtained by writing to Editorial Department, National Research Council of Canada, Ottawa 7, Canada. A charge of $20.00 a page must be paid on all papers reporting work done outside Canada.)

NRC maintains a scientific liaison office in London for the exchange of scientific information. The Council has a scientific exchange agreement with the Soviet Academy of Sciences that provides for visits of scientists ranging from three weeks to nine months; it has also accepted responsibility for exchange of Canadian scientists with France under the Cultural Agreement between the Governments of Canada and France. An agreement on scientific exchanges has also been concluded with Brazil.

Canadian Patents and Development Limited, a subsidiary of NRC, patents and licenses new products and processes which come out of NRC research, that of other government departments and agencies, and that of Canadian universities. CPDL initiates and finances the development of many inventions to such a stage that it becomes economically possible for private industry to carry them through to production and sale, thus bridging the gap between research and industry.

(For additional information, write to Information Services Office, National Research Council of Canada, Ottawa 7.)

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CANADA

REFERENCE PAPERS

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 61

(Revised May 1967)

THE NATIONAL RESEARCH COUNCIL OF CANADA

The Federal Government assumes the major responsibility for financing, stimulating, and carrying out scientific research and development in Canada. In addition to the activities of the National Research Council of Canada, Atomic Energy of Canada Limited, and the Department of Mines, Energy and Resources, federal agencies involved in research include the Departments of Agriculture, Forestry, Fisheries, National Defence, National Health and Welfare, and Northern Affairs and National Resources.

Responsibilities

The duties of the National Research Council of Canada are outlined in the National Research Council Act. Broadly stated, the Council has charge of all matters affecting scientific and industrial research in Canada that may be assigned to it by the Committee of the Privy Council on Scientific and Industrial Research. The Council is responsible to a designated minister who is a member of the Committee of the Privy Council on Scientific and Industrial Research. The Act also designates a number of specific responsibilities: for discovering processes and methods that may promote the expansion of existing industries or the development of new ones; for maintaining and improving primary standards for Canada and certifying scientific and technical apparatus and instruments used in the government service and in industries; for investigating industrial products or materials at the request of any of the industries of Canada; and for conducting research on the use of industrial wastes.

Organization

The National Research Council of Canada consists of the President, the Vice-President (Administration), two Vice-Presidents (Scientific), and not more than 17 other members appointed by the Governor in Council. The Council is a body corporate and is required to meet at least three times a year in Ottawa.

Except for the four permanent officers, Council members are appointed for a term of not more than three years and serve without salary. Most of the Council members are drawn from the senior scientific staff of universities; others represent labour and industry. The Council carries direct and final authority on grants and scholarships and is responsible for broad policy in operating the NRC laboratories.

National Research Laboratories

In 1916, the National Research Council of Canada was founded to link science with industry. It began by setting up programmes of scholarships for graduate students and research grants to university professors, and established a network of associate committees.

By 1917, when these activities were running smoothly, the Council became convinced that it was impossible to fulfil its obligations to industry unless it was also provided with its own laboratory facilities. Nine years later, in 1925, the Council began laboratory work of its own, but on a small scale.

From work initiated in NRC's first laboratory a viable magnesite industry emerged, which is still going strong some 40 years later.

Large-scale research began in 1932 when a central laboratory was opened on Sussex Drive in Ottawa. This laboratory housed four divisions, which at that time were called Physics and Engineering, Biology and Agriculture, Chemistry, and Research Information.

During the depression years, a nucleus of highly-trained specialists in all the main fields of science was built up. When the time came, these men became leaders in directing Canada's war research. The wartime demands were enormous and a tenfold expansion had to be, and was, achieved.

War Record

When war broke, the Council had one laboratory in operation. During the war, 21 other laboratories were established from Halifax to Vancouver. By 1940, NRC was engaged in almost every field of war research, and peace-time operations had been reduced to a minimum. There were scores of major achievements: in medicine, in aeronautical engineering, in the chemistry of supplies and substitutes, in biological warfare, in tropicalization of equipment for use in jungles, in protective clothing, in nutrition, in packaging and transportation of foods, in atomic energy -- to say nothing of innumerable devices such as predictors, gun-sights, chronographs, sound-ranging, anti-mine and anti-submarine equipment and radar.

Just as the Canadian Corps during the First World War established the significance of Canada in military affairs, so Canadian scientists during the Second World War won for Canada a recognized place in the field of science.

Post-War Growth

After the Second World War, the anticipated industrial recession failed to materialize. Instead, the country boomed and the reorganization of NRC expanded with the country.

Radio research, which had grown from a small group in 1939 to a large branch, was associated with the electrical engineering laboratories in 1947 to establish the Radio and Electrical Engineering Division. The same year, the Division of Building Research was formed to study problems of construction, to act as the research wing of the Central Mortgage and Housing Corporation, and to provide technical and secretarial support to the Associate Committee on the National Building Code. In 1948, the Prairie Regional Laboratory -- largely an outgrowth of the work of the Division of Biosciences -- was set up on the campus of the University of Saskatchewan in Saskatoon. The Atlantic Regional Laboratory was opened on the campus of Dalhousie University in Halifax in 1952, and the Division of Chemistry was divided into the Division of Pure Chemistry and the Division of Applied Chemistry. In 1955, the Division of Physics was divided into the Division of Pure Physics and the Division of Applied Physics. The National Aeronautical Establishment, comprising the aerodynamics, flight and structural activities of the Division of Mechanical Engineering, was formed at the beginning of 1959 to meet the aeronautical research needs of military and civil aviation. The effect of radiation on living things is the subject of research in the newest NRC division, the Division of Radiation Biology.

For reasons of necessity, other smaller laboratories are located outside Ottawa; for example, a meteor laboratory is situated 20 miles south of the city, a radio observatory in Algonquin Park, building research units in the Far North, and upper-atmosphere research facilities at various points in the Arctic.

In 1966 NRC took over the Churchill Research Range, placing it under its newly-formed Space Research Facilities Branch. This Branch also supports experiments from universities and government laboratories by providing rockets, components, and launch support services for the Canadian space-research programme.

NRC's ten laboratory divisions in Ottawa and two regional institutions, one in Halifax and one in Saskatoon, now comprise Canada's largest and most diversified laboratory complex. Both pure and long-term applied research are carried out in these laboratories, as well as contract research on specific projects, standardization work, and testing for which no private or commercial facilities are available.

The staff of NRC numbers 2,900, about 820 of whom are professionally engaged in scientific research. The estimated laboratory budget for 1967-68 now runs over $40 million.

Defence Research Board

In 1947, research in support of Canada's military forces was transferred from the National Research Council of Canada to the newly-organized Defence Research Board. As an active nucleus, the Board took over the defence laboratories that the Council had been operating at Valcartier, Halifax, Ottawa, and elsewhere.

Atomic Energy of Canada Limited

The largest wartime undertaking was the Atomic Energy Project. It began in 1942 as a secret laboratory in a wing of the University of Montreal, and was transferred to the new site at Chalk River by 1946. In the first ten years of its existence the project grew so extensively that size and commercial importance justified the establishment in 1952 of a separate Crown Corporation, Atomic Energy of Canada Limited.

Medical Research Council

The Medical Research Council, an autonomous unit responsible for policy in the field of medical research but functioning initially within the administrative framework of the National Research Council, was established in 1960. At the same time, the National Research Council disbanded its Division of Medical Research, and its Advisory Committee on Medical Research, which had previously administered Council grants in this important field. The primary aim of the Medical Research Council is the development of medical research and the support of medical research workers in the university centres of Canada.

Support for University Research

When the National Research Council was established in 1916, the nation's primary need was, as it still is, for qualified scientists and for facilities to train them. The first action of the Council, therefore, was to support research in the natural sciences in Canadian universities by awarding scholarships to graduate students and grants-in-aid to professors.

This programme has continued without interruption for 50 years. During the last decade, the number of universities and colleges holding operating grants has doubled, and annual expenditures have increased at an accelerating rate, rising from $2.7 million in 1957-58 to a new high of $34.4 million for 1966-67. Of this sum, an increase of $12.5 million over 1965-66, $28 million was used for grants in aid of research to university staff members, $5.5 million for graduate scholarships and post-doctorate fellowships,and $0.9 million to assist the special activities of scientific organizations at national and international levels.

Thus, during 1966-67, the Council supported the research work of more than 4,900 graduate students and over 2,741 professors, in the biological sciences, engineering, pure and applied mathematics, experimental psychology, dental research and space research.

Research activities in Canadian universities have advanced enormously during the last ten years and the National Research Council has contributed substantially to this progress.

The types of university support provided are: direct, consisting of support to individuals in the form of scholarships, fellowships and grants in aid of research; and indirect, consisting of support related to the promotion and encouragement of research at the universities, such as contributions to scientific organizations and functions, publication of research journals and the administrative expenses of the programme.

The Council also conducts and administers the North Atlantic Treaty Organization's Science Committee's scholarship and fellowship programme for Canadians. In addition, the Council administers the Atomic Energy Control Board's grants-in-aid programme; decisions regarding its grants are made by a Committee of the Board.

Funds are provided in annual Parliamentary appropriations to the Council, and the Atomic Energy Control Board, and by NATO's Science Committee, which receives Canada's annual contribution to its activities from the Department of External Affairs.

Post-doctorate Fellowships

Since 1948, the NRC has been developing a programme of post-doctorate fellowships. These provide salaries and travel expenses to enable young scientists who have already attained their doctorates to work for a year or two at NRC or other government laboratories in Canada. There are now about 300 of these visiting scientists in Canada, from 30 countries.

International Scientific Affiliations

The National Research Council is the representative body in Canada for the International Council of Scientific Unions and most of its constituent unions, and also holds membership, on behalf of Canada, in many other international scientific associations and organizations. In addition, the Council, in conjunction with the Department of External Affairs, has responsibility for Canadian participation in the NATO Science Committee and in some of the scientific activities of the Organization for Economic Co-operation and Development. The National Research Council supports travel of Canadian scientists to attend meetings of various international scientific organizations.

NRC maintains liaison offices in London, Paris and Washington, where liaison officers are accredited to the respective embassies as scientific attachés. In addition, an NRC representative is attached to the Permanent Delegation of Canada to OECD as First Secretary (Scientific).

The National Research Council has a scientific exchange agreement with the Soviet Academy of Sciences, which provides for visits of scientists ranging from three weeks to nine months. In addition, NRC has accepted responsibility for exchange of Canadian scientists with France under the cultural agreement between the Governments of Canada and France.

Canadian Journals of Research

The National Research Council of Canada publishes eight scientific journals in basic physical and biological sciences: biochemistry, botany, chemistry, earth sciences, microbiology, physics, physiology and pharmacology, and zoology. These provide an international distribution for scientific information originating in Canadian laboratories and institutes. Any article submitted for publication is first examined by anonymous referees who are expert in the subject of the article.

During 1966, 2,289 articles were submitted to the Canadian Journals of Research and 1,572 were published. Of those published, 44 per cent came from Canadian universities, 27 per cent from outside Canada, 9 per cent from laboratories of the National Research Council of Canada and 20 per cent from all other sources (federal and provincial government laboratories, industry, etc.). Over the past few years, the Canadian Journals of Research have grown at an average rate of 15 per cent a year. This is roughly consistent with the current total rate of growth of investment in fundamental research in Canada.

National Science Library of Canada

NRC maintains the National Science Library of Canada, which is responsible for ensuring that literature resources and information services are available to meet the needs of the scientific and industrial community of Canada. This is accomplished through a service that answers requests for scientific and technical information, provides loans and photocopies, performs literature searches, compiles bibliographies, and locates translations and obscure publications and references. The Library's collection of more than 600,000 volumes is growing at the rate of 40,000 volumes a year.

Science Film Library

The National Science Film Library was made possible by NRC and is administered by the Canadian Film Institute at Ottawa. The Library has available more than 2,000 films on scientific developments.

Links with Industry

The National Research Council is a link between the scientific interests of the Government, industry and the universities of Canada and a patron of basic and applied science.

Much of the work of NRC is of immediate application; for example, investigations requested by industrial groups or carried out under contract for individual companies. The projects range from electronics to building construction, from acoustics to food preservation.

Facilities are maintained by NRC that are too expensive or too specialized for most Canadian industries to support on their own. Examples are: a hydraulics laboratory, where scale-model studies are done on harbours,

breakwaters, riverbeds, canal locks, ships and propellers; aeronautical facilities such as wind tunnels, jet-engine test beds, low-temperature installations for icing-research on aircraft and helicopters; fire-research apparatus for the destructive testing of floors, walls and building components. Increasing use of these facilities is made by scientists and engineers from industry working along with NRC staff.

The Council's researchers have achieved international recognition in areas of applied research such as corrosion, physical standards, noise research related to construction, snow and ice research and photogrammetry.

In 1961 NRC appointed an Advisory Committee on Industrial Research, the aim of which was to bring industrial management into closer contact with the work of NRC and to keep NRC informed of the problems of industry. The Committee, composed largely of top management representatives of leading Canadian companies, also considers ways of encouraging greater research activity within industry.

NRC's Industrial Research Assistance Programme grew to an estimated $4.5 million in 1966-67. Since the Programme began in 1962, total industrial research effort has been initiated in industry amounting to more than $50 million, shared between company and government funding. Industrial research positions created by the Programme now total more than 800.

Technical Information

NRC's Technical Information Service, established in 1945, provides, without cost, information and advice on technological matters to Canadian firms. Its industrial engineers give direct assistance and advice especially to small firms on improvement of their plant layout, efficiency of operating and good plant management. This service answers about 14,000 enquiries a year from Canadian industries.

Physical Standards

NRC maintains, and improves by research, the primary physical standards for Canada (for precise measurements of length, mass, heat, electricity, time, etc.) and enters into international agreements concerning weights and measures.

Associate Committees

NRC maintains 45 associate committees to deal with special problems of national concern. Members serve without salary other than travelling and living expenses. Each committee has defined objectives; when these are accomplished, the committee is disbanded. Typical areas of interest are geotechnical research, computers, forest-fire protection, aerodynamics, automatic control, radiation biology and space research.

Scientific Attachés

NRC provides scientific attachés for the Canadian embassies in Paris, London and Washington. These offices also assist in the exchange of technical information.

Scientific attachés perform a dual function: as liaison officers they function as a direct link between the National Research Council of Canada and the scientific community of the country to which they are accredited; as attachés they function as an intergovernmental link to facilitate the development of national policy and action in the international field of science.

Patents

NRC has established Canadian Patents and Development Limited, a Crown Corporation which patents NRC inventions and then licences them to industry. CPD also performs this service for other government laboratories and by agreement with a number of Canadian universities.

Appendix A

NRC Laboratory Divisions

Division of Biosciences
- Animal Physiology
- Biological Macromolecules
- Biometrics
- Biophysics
- Carbohydrate and Lipid Chemistry
- Fermentations and Enzymology
- Food Chemistry
- Food Technology
- Microbiology
- Plant Physiology

Atlantic Regional Laboratory
- Reactions at High Temperatures
- Chemistry of Natural Products
- Biophysics
- Physiological Chemistry
- Chemical Biology
- Microbiology
- Instrumentation
- Marine Botany
- Phytochemistry

Prairie Regional Laboratory
- Physiology and Biochemistry of Fungi
- Physiology and Biochemistry of Bacteria
- Plant Biochemistry
- Chemistry of Natural Products
- Engineering and Process Development

Division of Radiation Biology

Division of Pure Chemistry
- Surface Chemistry and Low Temperature Calorimetry
- Thermochemistry
- Thermodynamics of Surface Regions; Structure of Carbons
- General Physical Chemistry
- Theoretical Studies
- Mass Spectrometry
- Chemical Kinetics and Photochemistry
- Molecular Spectroscopy
- Organic Spectrochemistry
- Physical Organic Chemistry
- Organic Chemistry
- Organic Synthesis
- Chemistry of Fats and Oils

Division of Applied Chemistry
- Chemical Engineering
- Colloid Chemistry
- High Polymer Chemistry
- High Pressure
- Hydrocarbon Chemistry
- Kinetics and Catalysis
- Metallic Corrosion and Oxidation
- Metallurgical Chemistry
- Physical Organic Chemistry
- Textile Chemistry

Division of Pure Physics
- Cosmic Rays and High Energy Particle Physics
- Solid State Physics
- Lasers and Plasma Physics
- Spectroscopy
- Theoretical Physics
- X-ray Diffraction

Division of Mechanical Engineering
- Mechanics
  - Analysis Laboratory
  - Instrument Laboratory
  - Control Systems Laboratory
  - Engineering Laboratory
- Hydrodynamics
- Thermodynamics
  - Gas Dynamics Laboratory
  - Engine Laboratory
  - Low Temperature Laboratory
  - Fuels and Lubricants Laboratory

National Aeronautical Establishment
- Flight Research Section
- Low Speed Aerodynamics Section
- High Speed Aerodynamics Section
- Unsteady Aerodynamics Laboratory
- Structures and Materials Laboratory

Division of Building Research
- Inorganic Materials Section
- Organic Materials Section
- Building Services Section
- Building Structures Section
- Building Physics Section
- Fire Research Section
- Soil Mechanics Section
- Northern Research Group
- Snow and Ice Section
- Construction Section

Division of Building Research (cont'd)
- Housing Section
- Building Standards Section (Codes Secretariat)
- Prairie Regional Station
- Atlantic Regional Station
- British Columbia Regional Station

Radio and Electrical Engineering Division
- Radio Astronomy
- Upper Atmosphere Research
- Space Electronics
- Electrical Engineering
- Electron Physics
- Navigational Aids
- Antenna Engineering
- Defence
- Instrument
- Engineering Design

Division of Applied Physics
- Acoustics
- Diffraction Optics
- Electricity
- Heat and Solid State Physics
- Instrument Optics
- Interferometry
- Mechanics
- Photogrammetric Research
- Radiation Optics
- X-rays and Nuclear Radiations

Appendix B

NRC Associate Committees

Aerodynamics, Associate Committee on
Aeronautical Structures and Materials, Associate Committee on
Agricultural and Forestry Aviation, Associate Committee on
Aircraft Noise, Associate Committee on
Aircraft Systems, Associate Committee on
Animal Nutrition, Associate Committee on
Automatic Control, Associate Committee on
Avionics, Associate Committee on
Biochemistry, Canadian National Committee of
Biological Programme, National Committee for the International
Biological Sciences, National Committee for the International Union of
Biophysics, Associate Committee on
Biophysics, Pure and Applied, National Committee for the International Organization for
Bird Hazards to Aircraft, Associate Committee on
Chemistry, Pure and Applied, Canadian National Committee for the International Union of
Composite Materials, Associate Committee on
Computers, Associate Committee on
Crystallography, Associate Committee on
Culture Collections and Taxonomy of Microorganisms, Canadian Committee on
Dental Research, Associate Committee on
Experimental Psychology, Associate Committee on
Fats and Oils, Canadian Committee on
Forest Fire Protection, Associate Committee on
Gearing Research, Associate Committee on
Geodesy and Geophysics, Associate Committee on
Geotechnical Research, Associate Committee on
Grain Research, Associate Committee on
Heat Transfer, Associate Committee on
High Polymer Research, Associate Committee on
History and Philosophy of Science, National Committee for the International Union for the
Hydrologic Decade, Canadian National Committee for the International
Illumination, National Committee for the International Commission on
Industrial Research Assistance, NRC Committee on
International Council of Scientific Unions (ICSU), Canadian National Committee for the
Mathematics, Pure and Applied, Associate Committee on
Mechanics, Canadian National Committee for the International Union of Theoretical and Applied
Meteorites, Associate Committee on
National Museums of Science and Engineering, Associate Committee on
National Building Code of Canada, Associate Committee on the
National Fire Codes, Associate Committee on
Natural Sciences Programme of UNESCO, Associate Committee on the
Nutritional Sciences, National Committee for the International Union of
Oceanography, Canadian Committee on
Paint Research, Associate Committee on

Physics, Pure and Applied, National Committee for the International Union of
Plant Breeding,Associate Committee on
Plant Diseases, Associate Committee on
Plasma Physics, Associate Committee on
Propulsion, Associate Committee on
Quaternary Research, Associate Committee on
Radiation Biology, Associate Committee on
Radio Science, Associate Committee on
Railway Problems, Associate Committee on
Refrigeration, National Committee for the International Institute of
Scientific Information, Associate Committee on
Space Research, Associate Committee on
Special Western Agricultural Committee
Water Pollution Research, Associate Committee on
Waves and Littoral Drift, Associate Committee on

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(Revised April 1965)

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THE NATIONAL RESEARCH COUNCIL OF CANADA

". . . the function of any central organization must be to stimulate and encourage this work in others, to fill the gaps, to conduct generalized researches not apt to the functions of narrower institutions, to create organizations and institutions where these are lacking."

Viscount Hailsham, 1963

In Canada, a great deal of research is conducted by government departments in such clearly defined areas as agriculture, fisheries, mining and defence. Many of the remaining areas of science and technology fall within the scope of the National Research Council, particularly those that aid the secondary industries.

When, in 1916, during the First World War, the Government of Canada established the National Research Council, the purpose was clear -- to strengthen science as an aid to industrial development. From the beginning, the NRC has pursued this objective in two ways: by encouraging and supporting basic science, mainly in the universities, and, as conditions permitted, by strengthening technology as an aid to secondary industries.

Responsibilities

The duties of the Council are outlined in the Research Council Act. Broadly stated, the Council has charge of "all matters affecting scientific and industrial research in Canada that may be assigned to it by the Privy Council Committee on Scientific and Industrial Research" (to which it reports).

The Act also designates a number of specific responsibilities: for discovering processes and methods that may promote the expansion of existing industries or the development of new ones; for maintaining and improving primary standards for Canada and certifying scientific and technical apparatus and instruments used in the government service

and in industries; for investigating industrial products or materials at the request of any of the industries of Canada; and for conducting research on the use of industrial wastes.

Organization

The Council itself -- the governing body of NRC -- is composed of 21 members selected for their scientific attainments, most of whom are scientific administrators in universities, in industry or in government laboratories. Four members are full-time salaried officers of the Council. These are the president and three vice-presidents (two scientific, the other administrative). The rest of the Council undergoes fairly frequent changes; two or three members are retired each year and are replaced by new appointees, who serve for a term of three years.

The Council as a whole is responsible for policy, major decisions and the maintenance of a high professional level within the organization. The salaried officers are responsible, in addition, for the work of the research and administrative divisions operated by the Council.

The NRC reports not to a departmental minister as such but to a member of the Cabinet who acts as chairman of the Privy Council Committee on Scientific and Industrial Research. This Committee is made up of nine ministers whose departments support research programmes and who, as a group, have general responsibility for the scientific policy and activities of the Canadian Government. The NRC is thus a government agency, not a government department. It is largely self-regulating; for instance, it is free to hire, promote or discharge its own professional staff without recourse to the Civil Service Commission, which controls appointees to the Canadian public service in general.

National Research Laboratories

In the late 1920's, the National Research Council began to develop laboratories and research staff; but it did not acquire a building of its own until 1932. By the outbreak of the Second World War, however, the Council's facilities were able to provide the nucleus in Canada for remarkable growth in scientific work, which came during and after the war. Beginning with three research divisions, in chemistry, physics and biology, NRC has expanded to comprise ten research divisions in science and engineering at Ottawa and two regional laboratories at outside locations. The entire staff of NRC numbers some 2,600, about 680 of whom are professionally engaged in scientific research. The yearly budget is now approaching $70 million.(1)

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(1) The scope of scientific investigation carried out by NRC and the degree of specialization within its divisions are indicated by the detailed list of sections in Appendix A.

Most NRC facilities are located at Ottawa. After the last war, however, regional laboratories were established at Saskatoon and Halifax in order to improve the industrial use of the resources of those areas. At the Prairie Regional Laboratory, the emphasis is on agricultural materials and the work is mainly biochemical; at the Atlantic Regional Laboratory, much of the work is on seaweed, fish wastes, peat and special biological problems affecting the pulping of wood. Work is also being done on chemical factors in steel-making, especially as they relate to the coal and iron ores of the Atlantic Provinces.

For reasons of necessity, other smaller laboratories are located outside Ottawa; for example, a meteor laboratory is situated 20 miles south of Springhill, a radio observatory in Algonquin Park, building research units in the Far North and upper-atmosphere research facilities at various points in the Arctic.

Atomic Energy of Canada Limited

During the wartime scientific boom of 1939-45, large research units developed within NRC, which have since become separate research organizations. For example, the work in atomic energy, which began with the Council in 1942, grew to the point where its size and commercial importance justified its establishment in 1952 under a separate authority. This is Atomic Energy of Canada Limited, the Crown Corporation whose extensive research facilities are centred at Chalk River, Ontario.

Defence Research Board

In 1947, research in support of Canada's military forces was transferred from NRC to the newly organized Defence Research Board. As an active nucleus, the Board took over the defence laboratories that the Council had been operating at Valcartier, Halifax, Ottawa, and elsewhere. With a budget comparable to that of NRC, the Board conducts investigations into materials, armament, special weapons, telecommunications, aeronautics, Arctic problems and operational techniques. Its programme of upper-atmosphere research is carried on in co-operation with NRC and other research groups in government and universities. The Board also makes grants to universities for medical studies related to problems of defence.

Medical Research Council

Aid to basic medical research in universities also developed within NRC, to a yearly volume in 1960 of over $2 million. In that year, the Medical Research Council of Canada was formed to assume responsibility for the medical grants and fellowships and otherwise to prusue its own objectives. By 1965-66, aid to basic medical research had reached $9 million.

Basic Science in Universities

The creditable state of science in Canada today is the result of steady growth over the past 50 years. In 1916, very little scientific research was done in Canadian universities. Only the universities of Toronto and McGill were granting Ph.D. degrees in science and, during the 11 years before the First World War, only three such doctorate degrees were granted.

Looking to the universities for competent scientists, NRC, began in 1917, a programme under which research grants were offered to professors and scholarships were offered to graduate students interested in research. This programme has kept pace with the capacity of the graduate schools in Canada and the demands of government and industry for researchers. Thus, by way of contrast, in 1965-66 more than 8,500 students were enrolled for post-graduate degrees in science and engineering (including medicine, dentistry and psychology) in some 24 Canadian universities. About 3,500 of these expected to obtain their master's or doctorate degrees in 1965. This growth, of course, reflects a general development in Canada. Nevertheless, the NRC programme played a significant role in facilitating this expansion and in developing a system of financial aid to basic research in universities, without interfering with academic freedom.

In 1965-66, NRC administered over 1,200 scholarships for students in post-graduate science, as well as many grants to professors. The grants not only furthered basic investigation but also provided means for hundreds of additional students to continue their post-graduate training. The Council's programme of aid to basic science is to cost nearly $22 million in 1966, compared to $3.6 million in 1957. Included in the programme are grants to individuals in Canadian and international scientific organizations, aid to international congresses held in Canada, and publication of a number of scientific journals.

Scientific Societies and International Affiliations

The Council makes annual grants to such organizations as the Royal Society of Canada and the Canadian Standards Association. It gives financial support to scientific conferences and aids in international exchange of scientists, for example such programmes as the NRC-Nuffield Foundation Visiting Lectures and the exchange between the Soviet Academy of Sciences and NRC. The Council also participates in a space-research programme in collaboration with a number of departments of the Canadian Government and other groups at the universities; and it facilitates Canada's share in the international space programme of COSPAR. It holds membership as the representing body for Canada in various international scientific organizations.

Research Journals

The Research Council also edits and publishes the Canadian Journals of Research, eight periodicals that report basic research in biochemistry, botany, chemistry, earth sciences, microbiology,

physiology and pharmacology, physics, and zoology. Forty per cent of the papers published originate in Canadian universities and, at present, about 15 per cent come from laboratories outside Canada. Distribution of the Journals is world-wide.

Library Services

The NRC Library in Ottawa is designated as the National Library of Science for Canada. It is recognized as the central clearing-house and information centre for science publications, and also as a distributing agency for scientific literature not otherwise available in Canada. It provides lending and photocopy services; it carries out literature searches and compiles bibliographies; its translation services cope with scientific reports in many languages, including Russian; and its index of English translations of foreign scientific publications currently runs to over 100,000 entries.

Post-doctorate Fellowships

Since 1948, the NRC has been developing a programme of post-doctorate fellowships. These provide salaries and travel expenses to enable young scientists who have already attained their doctorates to work for a year or two at NRC or other government or university laboratories in Canada. There are now about 275 of these visiting scientists in Canada, from 29 countries. Of these, 142 are in the NRC, 83 are in Canadian universities, and 50 are in other government departments and agencies. During 1965-66, 1,209 applications were received for post-doctorate fellowships, of which 203 were successful.

Applied Work for Industry

Much of the work of the NRC is of immediate application; for example, investigations requested by industrial groups or carried out under contract for individual companies. The projects range from electronics to building construction, from acoustics to food preservation.

Facilities are maintained by NRC that are too expensive or too specialized for most Canadian industries to support on their own. Examples are: a hydraulics laboratory, where scale-model studies are done on harbours, breakwaters, riverbeds, canal locks, ships and propellers; aeronautical facilities such as wind tunnels, jet-engine test beds, low-temperature installations for icing research on aircraft and helicopters; fire-research apparatus for the destructive testing of floors, walls and building components. Increasing use of these facilities is made by scientists and engineers from industry working along with NRC staff.

The Council's researchers have achieved international recognition in areas of applied research such as corrosion, physical standards, noise research related to construction, snow and ice research and photogrammetry.

Standards

The primary physical standards for Canada are maintained by NRC, which enters into international agreements concerning weights and measures. In addition to regular calibration of industrial standards, considerable research is done on the improvement of the primary standards. NRC made a distinguished contribution towards the adoption of a new standard for the metre, which is now based on wave-lengths of orange light emitted by an isotope of krypton. Advanced developments are being made by NRC physicists in the measurement of time, electrical quantities, heat, light and color.

Technical Information

In 1945, NRC established a Technical Information Service (TIS). The purpose of this office is to bring together the problems of industry and the technological facilities of the Council. TIS receives a large volume of enquiries each year, mainly from companies in the secondary and processing industries. In 1964-65, for example, about 17,000 enquiries were dealt with on a wide variety of problems. Most of the TIS work is with small and medium-sized firms possessing little or no technical staff; but large firms also make frequent use of the service because of the vast amount of material in technical periodicals and other scientific information available through NRC library facilities and the Council's foreign liaison offices. The Information Service itself does not operate research or testing laboratories, but it has at its disposal the technical experience of the NRC laboratories and is well acquainted with the services of other government laboratories and private consultants. Besides its central staff at Ottawa, TIS maintains local representatives across Canada, who work in co-operation with the field staffs of the provincial research councils.

The Technical Information Service issues reports on current developments in technology that have wide application in industry, and each year a number of information notes are prepared to bring industrial firms up to date on new manufacturing facilities, productivity techniques and scientific innovations.

Research in Industry

In 1961 NRC appointed an advisory committee on industrial research, the aim of which was to bring industrial management into closer contact with the work of NRC and to keep NRC informed of the problems of industry. The committee, composed largely of top management representatives of leading Canadian companies, also considers ways of encouraging greater research activity within industry.

In 1962 NRC established a Committee on Industrial Research Assistance (CIRA), whose membership was composed of senior representatives from government agencies having a direct interest in industrial research. The Committee assists NRC in a programme aimed at fostering long-term research in industry. In 1962 an initial fund of $1 million

was provided by the Government to help finance projects undertaken by industrial firms. The cost of projects aided under the plan was shared more or less equally between NRC and industry. Projects are of company choice and results remain the property of the respective firms. In allotting the available funds, preference goes to longer-term projects that appear to have potential for major industrial advances. By 1965-66, this fund had risen to $3.5 million.

Patents and Development

In 1947, NRC established Canadian Patents and Development Limited (CP&D), the Crown Corporation that patents NRC developments and inventions and makes them available under license to industry. CP&D also performs this service for other government laboratories and for Canadian universities.

Associate Committees

Over the years the Council has formed groups of specialists as needed, to study the use of certain resources and to investigate other problems science might help to solve. Today, some 36 associate committees, as these groups are called, are co-ordinating research effort and technical knowledge in as many fields(1). The committees, which are national in scope, combine the interests of industrialists, government experts, and university scientists. They have precise objectives and are disbanded as soon as their tasks are accomplished. Typical areas of interest at present are aerodynamics, automatic control, computers, crystallography, forest-fire protection, a national building code, oceanography, radiation biology, and space research.

Scientific Liaison

During the Second World War, NRC found it necessary to establish scientific liaison officers in London and Washington working through a Scientific Liaison Office in Ottawa to create an expeditious and secure channel for the exchange of information on classified research and to organize the exchange of visits by scientists.

After the war, with the advent of the Defence Research Board, these liaison officers were no longer concerned with classified research and were able to devote their attention to non-defence research. In the post-war years, as national and international activity in the field of science expanded greatly, it became desirable to accredit the scientific liaison officers as scientific attachés, to enable them to work in those areas where science and foreign relations intermingled.

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(1) See Appendix B.

Thus the present science attachés perform a dual function. On the one hand, as liaison officers they function as a direct link between the National Research Council and the scientific community of the country to which they are accredited. On the other hand, as attachés they function as an inter-governmental link to facilitate the development of national policy and action in the international field of science.

In addition to the scientific attachés in London and Washington, a similar post was created in the Canadian Embassy in Paris. The Paris attaché is also accredited to the Canadian delegations to NATO and OECD and assists these delegations in their scientific and technological activities.

Laboratory Divisions
National Research Council of Canada

DIVISION OF BIOSCIENCES

- Animal Physiology
- Biological Macromolecules
- Biometrics
- Biophysics
- Carbonhydrate and Fat Chemistry
- Fermentations and Exzymology
- Food Chemistry
- Food Technology
- Microbiology
- Plant Physiology

ATLANTIC REGIONAL LABORATORY--Halifax, Nova Scotia

- Biochemistry and Microbiology
- Chemistry of Natural Products
- Plant Physiology
- Reactions at High Temperatures

PRAIRIE REGIONAL LABORATORY--Saskatoon, Saskatchewan

- Physiology and Biochemistry of Fungi
- Physiology and Biochemistry of Bacteria
- Plant Biochemistry
- Chemistry of Natural Products
- Engineering and Process Development

DIVISION OF APPLIED CHEMISTRY

- Analytical Chemistry
- Kinetics and Catalysis
- Chemical Engineering
- Colloid Chemistry
- Metallic Corrosion and Oxidation
- Metallurgical Chemistry
- Applied Physical Chemistry
- Physical Organic Chemistry
- High Polymer Chemistry
- Rubber
- Textile Chemistry
- High Pressure

DIVISION OF PURE CHEMISTRY

- Organic Chemistry
- Physical-Organic Chemistry
- Organic Spectrochemistry
- Organic Synthesis
- Chemical Kinetics and Photochemistry
- Mass Spectrometry
- Molecular Spectroscopy
- General Physical Chemistry
- Surface Chemistry and Low Temperature Calorimetry
- Thermochemistry
- Thermodynamics of Surface Regions
- Structure of Carbons
- Inorganic Chemistry
- Chemistry of Fats and Oils

DIVISION OF APPLIED PHYSICS

- Acoustics
- Electricity
- Mechanics
- Heat and Solid State Physics
- Instrumental Optics
- Interferometry
- Photogrammetric Research
- Radiation Optics
- X-Rays and Nuclear Radiations
- Diffraction Optics

DIVISION OF PURE PHYSICS

- Cosmic Rays and High Energy Particle Physics
- Low Temperature and Solid State Physics
- Spectroscopy
- Theoretical Physics
- X-Ray Diffraction
- Plasma Physics

DIVISION OF RADIATION BIOLOGY

- Now being organized

ENGINEERING

DIVISION OF BUILDING RESEARCH

- Inorganic Materials
- Organic Materials
- Building Services
- Building Structures
- Building Physics
- Fire Research
- Soil Mechanics
- Snow and Ice
- Northern Building
- Construction
- Housing
- Building Standards
- Prairie Regional Station
- Atlantic Regional Station
- British Columbia Regional Station

DIVISION OF MECHANICAL ENGINEERING

- Mechanics
  - Analysis Section
  - Instrument Laboratory
  - Control Systems Laboratory
  - Engineering Laboratory
- Hydrodynamics
  - Hydraulics Laboratory
  - Ship Section
- Thermodynamics
  - Gas Dynamics Laboratory
- Engine Laboratory
- Low Temperature Laboratory
- Fuels and Lubricants Laboratory

NATIONAL AERONAUTICAL ESTABLISHMENT

- Aerodynamics
- Unsteady Aerodynamics Laboratory
- Structure Laboratory
- Flight Research

RADIO AND ELECTRICAL ENGINEERING DIVISION

- Navigational Aids
- Electrical Engineering
- Upper Atmosphere Research
- Instrument Section
- Defence Section
- Engineering Design
- Space Electronics
- Radio Astronomy
- Antenna Engineering
- Electron Physics

APPENDIX B

Associate Committees
National Research Council of Canada

Aerodynamics, Associate Committee on

Aeronautical Structures and Materials, Associate Committee on

Aircraft Noise, Associate Committee on

Animal Nutrition, Associate Committee on

Automatic Control, Associate Committee on

Biochemistry, Canadian National Committee of

Biological Programme, National Committee for the International

Biological Sciences, Canadian National Committee for the International Union of

Biophysics, Associate Committee on

Biophysics, Pure and Applied, National Committee for the International Organization for

Bird Hazards to Aircraft, Associate Committee on

Chemistry, Pure and Applied, Canadian National Committee for

Computers, Associate Committee on

Co-ordination and Policy, Associate Committee on (Medical Research Council)

Crystallography, Associate Committee on

Culture Collections of Microorganisms, Canadian Committee on

Dental Research, Associate Committee on

Experimental Psychology, Associate Committee on

Fats and Oil, Canadian Committee on

Food, Associate Committee on

Forest Fire Protection, Associate Committee on

Gearing Research, Associate Committee on

Geodesy and Geophysics, Associate Committee on

Grain Research, Associate Committee on

Heat Transfer, Associate Committee on

High Polymer Research, Associate Committee on

History and Philosophy of Science, National Committee for International Union for the

Hospital Infections, Associate Committee on Control of (Medical Research Council)

Illumination, National Committee for the International Commission on

Industrial Research, NRC Advisory Committee on

Industrial Research Assistance, NRC Committee on

International Council of Scientific Unions (ICSU), Canadian National Committee for the

Mathematics, Pure and Applied, Associate Committee on

Meteorites, Associate Committee on

National Aviation Museum, Associate Committee on a

National Building Code of Canada, Associate Committee on the

National Fire Codes, Associate Committee on

Natural Sciences Programme of UNESCO, Associate Committee on the

Nutritional Sciences, National Committee for the International Union of

Oceanography, Canadian Committee on

Paint Research, Associate Committee on

Physics, Pure and Applied, National Committee for the International Union of

Physiological Sciences, National Committee for the International Union of

Plant Breeding, Associate Committee on

Plant Diseases, Associate Committee on

Propulsion, Associate Committee on

Radiation Biology, Associate Committee on

Radio Science, Associate Committee on

Railway Problems, Associate Committee on

Refrigeration, National Committee for the International Institute of

Scientific Information, Associate Committee on

Soil and Snow Mechanics, Associate Committee on

Space Research, Associate Committee on

Special Western Agricultural Committee -- This includes the following four Committees -- Grain Research
Plant Diseases
Plant Breeding
Animal Nutrition

Water Pollutiom, Associate Committee on

Waves and Littoral Drift, Associate Committee on

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CANADA

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INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

No. 61
(Revised July 1962)

THE NATIONAL RESEARCH COUNCIL OF CANADA

It has been said facetiously that in Canada the National Research Council does everything in science that no one else wants to do. This is misleading if it is taken to mean that the role of NRC in science is casual or minor. It simply recognizes the fact that a great deal of research is conducted by government departments in such clearly defined areas as agriculture, fisheries, mining and defence. The large remaining areas of science and technology fall within the scope of the National Research Council.

When in 1916, during the First World War, the Government of Canada established the National Research Council, the purpose was clear - to strengthen science as an aid to industrial development. From the beginning the NRC has pursued this objective in two ways: by encouraging and supporting basic science; and, as conditions permitted, by strengthening technology as an aid to secondary industries.

Responsibilities

The duties of the Council are outlined in the Research Council Act. Broadly stated, the Council has charge of "all matters affecting scientific and industrial research in Canada that may be assigned to it by the Privy Council Committee" (to which it reports). The NRC also has the duty of "advising the Government on questions of scientific and technical methods affecting the expansion of Canadian industries or the utilization of the natural resources of Canada".

The Act also designates a number of specific responsibilities: for discovering processes and methods that may promote the expansion of industries or the development of new ones; for maintaining and improving primary standards for Canada and certifying scientific and technical apparatus and instruments used in the government service and in industries; for investigating industrial products or materials at the request of any of the industries of Canada; and for conducting researches on the utilization of industrial wastes.

Organization

The Council itself - the governing body of NRC - is composed of 21 members selected for their scientific attainments, most of whom are scientific administrators in universities, in industry or in government laboratories. Three members are full-time salaried officers of the Council. These are the president and two vice-presidents (one scientific, the other administrative). The rest of the Council undergoes fairly rapid change; two or three members are retired each year and are replaced by new appointees who serve for a term of three years.

The Council as a whole is responsible for policy, major decisions and the maintenance of a high professional level within the organization. The salaried officers are responsible, in addition, for the work of the research and administrative divisions operated by the Council.

The NRC reports not to a departmental minister as such but to a member of the Cabinet who acts as chairman of the Privy Council Committee on Scientific and Industrial Research. This Committee is made up of seven ministers whose departments support research programmes and who, as a group, have general responsibility for scientific policy and activities of the Canadian Government. The NRC is thus a government agency, not a government department. It is largely self-regulating; for instance, it is free to hire, promote or discharge its own professional staff without recourse to the Civil Service Commission, which controls appointees to the Canadian public service in general.

National Research Laboratories

In the late 1920's, the National Research Council began to develop laboratories and research staff; but it did not acquire a building of its own until 1932. By the outbreak of the Second World War, however, the Council's facilities were able to provide the nucleus in Canada for an explosive growth in scientific work, which came during and after the war. Beginning with three research divisions, in chemistry, physics and biology, NRC has expanded to comprise nine research divisions in science and engineering at Ottawa and two regional laboratories at outside locations. The entire staff of NRC numbers some 2600, about 740 of whom have professional status. The yearly operating budget is now about $42 million.

The Division of Administration is larger than one might expect in a research organization. In addition to its normal administrative duties, it handles NRC's extensive "foundation programme" (grants in aid of research, scholarships, fellowships), its library, information services, and publications, and other scientific responsibilities both national and international.

The scope of scientific investigation carried out by NRC and the high degree of specialization within its divisions are indicated by the detailed list of sections contained in Appendix A.

Most of the NRC facilities are located at Ottawa. After the last war, however, regional laboratories were established at Saskatoon and Halifax in order to improve the industrial utilization of the resources of those areas. At the Prairie Regional Laboratory, the emphasis is on agricultural materials and the work is mainly biochemical; at the Atlantic Regional Laboratory, much of the work is on seaweed, fish wastes, peat and special biological problems affecting the pulping of wood. Work is also being done on chemical factors in steelmaking, especially as they relate to the coal and iron ores of the Atlantic provinces.

For reasons of necessity other smaller laboratories are located outside Ottawa; for example, a meteor laboratory is situated 20 miles south at Springhill, a radio observatory in Algonquin Park, building research units in the far North and upper-atmosphere research facilities at various points in the Arctic.

Atomic Energy of Canada Limited

During the wartime scientific boom of 1939-45, large research units developed within NRC, which have since become separate research organizations. For example, the work in atomic energy, which began with the Council in 1942, grew to the point where its size and commercial importance justified its establishment in 1952 under a distinct authority. This is Atomic Energy of Canada Limited, the Crown Corporation whose extensive research facilities are centred at Chalk River, Ontario.

Defence Research Board

Various laboratories in Canada that NRC had staffed for defence work achieved separate identity in 1947 under the newly-formed Defence Research Board of Canada. With a budget comparable to that of NRC, the Board conducts investigations in materials, armament, special weapons, telecommunications, aeronautics, Arctic problems and operational techniques. Its programme of upper-atmosphere research is carried on in co-operation with NRC and other research groups in government and universities. The Board also makes grants to universities for medical studies related to problems of defence.

Medical Research Council

Aid to basic medical research in universities also developed within NRC to a yearly volume in 1960 of over $2 million; and, in that year, the Medical Research Council of Canada was formed as an autonomous body to take over the medical grants and fellowships and otherwise to pursue its own objectives.

Basic Science in Universities

The creditable state of science in Canada today is the result of steady growth over the past 40 years. In 1916, virtually no scientific research was done in Canadian universities. Only the universities of Toronto and McGill were granting Ph.D. degrees in science, and, during the 11 years before the First World War, only three such doctorate degrees were granted.

Looking to the universities for competent scientists, NRC very early began a programme under which research grants were offered to professors and scholarships were offered to graduate students interested in research. This programme has kept pace with the capacity of the graduate schools in Canada and the demands of government and industry for researchers. Thus, by way of contrast, in 1961-62 more than 3600 students were enrolled for postgraduate degrees in science and engineering (excluding medicine, dentistry and psychology) in some 30 Canadian universities. About 2000 of these expected to obtain their master's or doctorate degrees in 1962. This growth of course reflects a general development in Canada and was not accomplished solely through the NRC programme. Nevertheless the NRC programme played a most significant role in facilitating the expansion and in developing a system of financial aid to basic research in universities without interfering with academic freedom.

In 1961-62, NRC administered nearly 1100 scholarships for students in postgraduate science and 1480 grants to professors. The grants not only furthered basic investigations but also provided the means for hundreds of additional students to continue their postgraduate training. The Council's programme of aid to basic science is to cost nearly $15 million in 1962, compared to $3.6 million in 1957. Included in the programme are grants to Canadian and international scientific organizations, aid to international congresses held in Canada, and publication of a number of scientific journals.

Scientific Societies and International Affiliations

The Council makes annual grants to such organizations as the Royal Society of Canada and the Canadian Standards Association; it gives financial support to scientific conferences and aids in international exchange of scientists, for example in such programmes as the NRC-Nuffield Foundation Visiting Lectures and the recently-inaugurated exchange between the Soviet Academy of Sciences and NRC. The Council also participates in a space research programme in collaboration with a number of departments of the Canadian Government and other groups at the universities; and it facilitates Canada's share in the international space programme of COSPAR.

It holds membership as the representing body for Canada in various international scientific organizations. In 1961, NRC's president, Dr. E.W.R. Steacie, was elected president of the International Council of Scientific Unions.

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The Research Council also edits and publishes the Canadian Journals of Research, six periodicals that report basic research in biochemistry, physiology, botany, chemistry, microbiology, physics, and zoology. Forty per cent of the papers published originate in Canadian universities and, at present, about 15 per cent come from laboratories outside Canada. Distribution of the Journals is world wide.

Research in NRC Laboratories

In its own laboratories NRC conducts a considerable volume of basic research. Though these fundamental studies are more usual in physics, chemistry and biology, investigations of basic character are carried on in the divisions of applied science and engineering as a balance and complement to the applied work.

Library Services

The NRC Library of Ottawa is designated as the national library of science for Canada. It is recognized as the central clearing-house and information centre for science publications, and also as a distributing agency for scientific literature not otherwise available in Canada. It provides lending and photocopy services; it carries out literature searches and compiles bibliographies; its translation services cope with scientific reports in many languages, including Russian; and its index of English translations of foreign scientific publications currently runs to 90,000 entries.

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Scientific Liaison

During the Second World War, NRC found it necessary to establish scientific liaison officers in London and Washington working through a Scientific Liaison Office in Ottawa to create an expeditious and secure channel for the exchange of information on classified research and to organize the exchange of visits by scientists.

After the war, with the advent of the Defence Research Board, the liaison officers were no longer concerned with classified research and were able to devote their attention to non-defence research. In the post-war years, as national and international activity greatly expanded in the field of science, it became desirable to accredit the scientific liaison officers as scientific attaches to enable them to work in those areas where science and foreign relations intermingled.

The present science attaches thus perform a dual function. On the one hand, as liaison officers they function as a direct link between the National Research Council and the scientific community of the country to which they are accredited. On the other hand, as attaches they function as an inter-governmental link to facilitate the development of national policy and action in the international field of science.

In addition to the scientific attaches in London and Washington, a similar post has been created in the Canadian Embassy in Paris. The Paris attache is also accredited to the Canadian delegations to NATO and OECD and assists these delegations in their scientific and technological activities.

APPENDIX A

Laboratory Divisions
National Research Council of Canada

SCIENCE

DIVISION OF APPLIED BIOLOGY

- Animal Physiology
- Biological Macromolecules
- Biometrics
- Biophysics
- Carbohydrate and Fat Chemistry
- Food Technology
- Fermentations and Enzymology
- Food Chemistry
- Microbiology
- Plant Physiology

ATLANTIC REGIONAL LABORATORY--Halifax, N.S.

- Biology
- Chemistry
- Reactions at High Temperatures
- Engineering and Development

PRAIRIE REGIONAL LABORATORY--Saskatoon, Sask.

- Physiology and Biochemistry of Fungi
- Physiology and Biochemistry of Bacteria
- Plant Biochemistry
- Chemistry of Natural Products
- Engineering and Process Development

DIVISION OF APPLIED CHEMISTRY

- Analytical Chemistry
- Applied Catalysis
- Chemical Engineering
- Colloid Chemistry
- Corrosion
- Metallurgical Chemistry
- Applied Physical Chemistry
- Physical Organic Chemistry
- High Polymer Chemistry
- Rubber
- Textiles

DIVISION OF PURE CHEMISTRY

- Organic Chemistry
- Organic Spectrochemistry
- Organic Synthesis
- Chemical Kinetics and Photochemistry
- Mass Spectrometry
- Molecular Spectroscopy
- General Physical Chemistry
- Surface Chemistry and Low Temperature Calorimetry
- Thermochemistry
- Activated Carbon, Inorganic Chemistry
- Chemistry of Fats and Oils
- Fibre Research

DIVISION OF APPLIED PHYSICS

- Acoustics
- Electricity and Mechanics
- Heat and Solid State Physics
- Instrumental Optics
- Interferometry
- Photogrammetric Research
- Radiation Optics
- Special Problems
- X-Rays and Nuclear Radiations

DIVISION OF PURE PHYSICS

- Cosmic Rays
- Low Temperature and Solid State Physics
- Spectroscopy
- Theoretical Physics
- X-ray Diffraction

DIVISION OF BUILDING RESEARCH

- Building Materials
- Building Services
- Building Structures
- Building Physics
- Fire Research
- Soil Mechanics
- Snow and Ice
- Northern Building Construction
- Housing
- Building Standards
- Prairie Regional Station
- Atlantic Regional Station
- B.C. Regional Station
- Specifications

ENGINEERING

DIVISION OF MECHANICAL ENGINEERING

- Mechanics
  - Analysis Section
  - Instruments and Control Systems
  - Engineering Laboratory
- Hydrodynamics
  - Hydraulics Laboratory
  - Ship Laboratory
- Thermodynamics
  - Gas Dynamics Laboratory

ENGINEERING (Cont'd.)

Engine Laboratory
Low Temperature Laboratory
Fuels and Lubricants Laboratory
Engineering Workshops

NATIONAL AERONAUTICAL ESTABLISHMENT

Aerodynamics
Structures
Flight Research

RADIO AND ELECTRICAL ENGINEERING DIVISION

Navigational Aids
Microwave Section
Electrical Engineering
Upper Atmosphere Research
Instrument Section
Defence Section I
Defence Section II
Engineering Design

APPENDIX B

Associate Committees
National Research Council of Canada

Associate Committee on Aeronautical Structures and Materials

Associate Committee on Aerodynamics

Associate Committee on Aircraft Noise

Associate Committee on Automatic Control

National Committee for the International Organization for Pure and Applied Biophysics

National Committee for the International Union of Pure and Applied Chemistry

Canadian National Committee of Biochemistry

Canadian Committee on Culture Collections of Microorganisms

Associate Committee on Crystallography

Associate Committee on Dental Research

Associate Committee on Electrical Insulation

Associate Committee on Experimental Psychology

Canadian Committee on Fats and Oils

Associate Committee on Food

Associate Committee on Forest Fire Protection

Associate Committee on Gearing Research

Associate Committee on Geodesy and Geophysics

Associate Committee on Heat Transfer

National Committee for the International Union for the History and Philosophy of Science

Associate Committee on High Polymer Research

Associate Committee on Control of Hospital Infections

National Committee for the International Commission on Illumination

Associate Committee on Meteorites

Associate Committee on a National Aviation Museum

Associate Committee on the National Building Code

Associate Committee on National Fire Codes

Associate Committee on the Natural Sciences Programme of UNESCO

National Committee for the International Union of Nutritional Sciences

Canadian Committee on Oceanography

Joint Committee on the Institute of Parasitology

National Committee for the International Union of Pure and Applied Physics

National Committee for the International Union of Physiological Sciences

Associate Committee on Propulsion

Prairie Regional Committee

Associate Committee on Radio Science

Associate Committee on Radiation Biology

Associate Committee on Railway Problems

National Committee on Scientific Information

Associate Committee on Soil and Snow Mechanics

Associate Committee on Space Research

Associate Committee on Waves and Littoral Drift

National Committee for the International Institute of Refrigeration

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THE CANADIAN STEEL INDUSTRY

(Prepared in the Iron and Steel Division,
Materials Branch, Department of Industry,
Trade and Commerce, Ottawa.)

By international standards, the Canadian steel industry is small, ranking twelfth in the world and producing approximately 1.9 per cent of the total world output. However, the industry experiences an above-average growth-rate of close to 7 per cent *per annum*, compared to the world average of just over 6 per cent. Capacity figures for the Canadian steel industry are 13.5 million short tons for 1972, 15.4 million for 1973, 16.3 million for 1974, and 16.9 million for 1975. The latter are estimates based on returns from the industry concerning its intentions. Production estimates are 12.7 million short tons for 1972, 13.2 million for 1973 and 14 million for 1974. Various estimates have been made for production to 1980, and these estimates range from 18 million to 24 million short tons.

The Canadian steel industry is operating at 90 percent capacity, which is high by international standards. It is a highly efficient, dynamic, active and modern industry. Productivity is good. It is competitive in price when competing on an equal basis. The Canadian industry has been in the forefront in some of the newest steelmaking technologies: BOF practices, continuous casting, direct reduction and the new bottom-blown open-hearth process. Considerable investment is being made in expansion projects.

The industry has come a long way in a short time. From 1736, when history records forged-iron production in the St. Maurice forges in New France until the 1940s, the industry was almost non-existent. Peak annual production amounted to about one million tons. From the 1940s onward, strong demand at home and abroad encouraged a high level of growth.

The pace has increased steadily. Large iron-ore mines have been opened up, additional units of open-hearth, blast furnaces and basic-oxygen furnaces have been installed, the electric-arc furnace has been developed, new rolling-mill facilities have been added, old mills have been expanded and modernized, and the list of products obtained from steel ingots has grown steadily. The industry has become more efficient and more diversified. It has more than tripled its productive capacity within the past decade, made

technological advances in almost every stage of operation, and developed a very satisfactory system of marketing and distribution.(1)

Location

Describing the Canadian steel industry as stretching from coast to coast is a slight exaggeration but, in a broad sense, it is true. From east to west- there is Newfoundland Steel in St. John's and on Cape Breton Island is located the Crown Corporation Sydney Steel Corporation (Sysco), owned by the Nova Scotia government. In British Columbia is located Western Canada Steel Ltd. (Cominco Ltd.). With few exceptions, companies have tended to locate close to markets.

Other integrated mills and a majority of the smaller steelmaking firms are concentrated in Ontario and Quebec. The Steel Company of Canada Ltd. (Stelco), Dominion Foundries and Steel Ltd. (Dofasco) and the Algoma Steel Corporation (Algoma) are the three integrated mills in Ontario. These three firms account for about 80 per cent of Canadian steel production.

At Contrecoeur, Quebec, Sidbec-Dosco Ltd., with its new electric furnaces and Midland-Rose pelletized iron-ore reduction plant coming on stream, is the newest integrated steelmaker in Canada.

In addition to the six integrated facilities, there are a number of smaller steelmakers, whose plants use electric arc-furnaces and cold-scrap charges. Rounding out the industry are several facilities with only a variety of rolling-mills for finishing operations. And the industry includes one specialty producer -- Atlas Steels of Welland, Ontario. There are 47 Canadian plants with steelmaking capabilities. These range from the giant Stelco down to Quality Steel Foundries of Edmonton, Alberta, which can produce 1,000 tpy(2) for steel castings in two $1\frac{1}{2}$-ton electric furnaces.

The companies are distributed unevenly among the provinces. Newfoundland Steel is the only producer in that eastern province; in Manitoba are located the Manitoba Rolling Mills of Dominion Bridge; while Saskatchewan can claim only Interprovincial Steel and Pipe Corporation.

The heaviest concentration is, of course, in the highly-industrialized province of Ontario. Most of the big ones as rated by melting capacity -- Stelco, Dofasco and Algoma -- are located there. The province also has a number of medium-size producers, including Atlas, Burlington Steel Company, and Lake Ontario Steel Company, all in the 250-300,000 tpy range.

Quebec, which contains approximately 25 per cent of Canada's population but accounts for only about 12 per cent of the country's steel

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(1) Attached as Appendix III is a table showing Canadian steelmaking capacity as of January 1, 1973.

(2) tpy = short tons a year

consumption, has a representative group of companies. In addition to Sidbec-Dosco, the Quebec steel roster includes: Canadian Steel Foundries, rated at 102,000 tpy; Canadian Steel Wheel, 160,000 tpy; Atlas 70,000; and Griffin Steel Foundries 52,500. Seven other installations can produce between 3,600 and 42,000 tpy. Quebec's rolling-mill capacity, and indeed production, exceed raw-steel production.

In Nova Scotia, Sysco dominates the steel landscape, overshadowing two small companies, and the Stelco plant at Edmonton has, at 125,000 tpy, more than twice the capacity of the other three steel-plants in Alberta.

Western Canada Steel Limited accounts for most of the steel made in British Columbia, and five smaller firms also operate in the province.

To all intents and purposes, the Canadian steel industry is local-market oriented. The vast majority of mills compete in a local market, producing a special product (rebar, rods, sheet, strip, and so on) for that market. To some extent, Stelco, Algoma and Dofasco operate similarly. However, they do market their products throughout Canada, with penetration in differing markets.(3)

Product orientation

Stelco's product-line covers the widest range in Canada. Although the firm does not supply rails or structurals, its product "mix" covers almost all the remainder of the spectrum. Major products included are plate, hot- and cold-rolled sheet, tinplate, hot- and cold-rolled bars, reinforcing bars, wire and wire rods, pipes and tubing, fasteners, and forgings.

Dofasco's product-line is primarily limited to flat-rolled items and castings. Its carbon, alloy and steel castings -- up to 25,000 lbs -- include railroad-car products, steel valve-casings, and components for mining equipment. The flat-rolled line embraces hot-rolled sheet and strip, skelp, plate, floor-plate, cold-rolled sheet and strip, electrical sheets, enameling sheet, galvanized sheet and tinplate of many types, as well as pre-painted sheets, which are produced in a plant owned jointly with Stelco.

Dofasco's concentrated effort on serving the flat-rolled market, considered the fastest-growing in Canada, puts the firm in a more recession-proof posture than some of its competitors. Its best customers in flat-rolled products are domestic and include producers of consumer durables such as automative wholesalers and warehouses, agricultural machinery, construction, containers, machinery and tools, natural resources, appliances and utensils, other metal stampings and pressings and railway cars. Dofasco owns National Steel Car, a wholly-owned subsidiary that produces railroad cars.

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(3) Appendix I comprises a list of Canadian steel-rolling mills by province.

Located on the St. Mary's River, which connects Lakes Superior and Huron, Algoma Steel Corporation currently ranks as the No. 3 producer in the Canadian industry, but may reclaim second place when a current expansion program lifts its steel-making capacity to 4 million short tons a year early in 1973.

The most western of the "Big Three", Algoma, derives both bonuses and deficits from its geographical setting. For example, the firm probably exports a greater percentage of its production to the U.S. than either Stelco or Dofasco. It has an edge when it comes to markets in Western Canada, particularly as a supplier of plate to fabricators of large-diameter pipe. Algoma is Canada's sole producer of wide-flange beams, rolling sections up to 24 inches and welding sections up to 48 inches.

Among its facilities, Algoma operates the widest hot-strip mill in Canada, the 106-inch mill started in 1963, and the widest plate-mill, the new 166-inch mill completed late last year.

Sysco is the largest maker of railroad rails in Canada. Its rails are produced from vacuum-treated steel and can be produced to a length of 25 metres. Sysco's new rail-finishing mill, if not the most modern in the world, is one of the most modern. In addition to rails, Sysco can also supply tie-plates. Sysco is favoured by its location at tidewater, which has enabled it to secure a fair amount of export business since it began operations.

The westernmost steel-producer in Canada is Western Canada Steel Limited, a wholly-owned subsidiary of Cominco Ltd., with plants in Calgary and Vancouver. Its current capacity is 175,000 tons a year of electric-furnace steel and hot-rolled carbon bars and shapes. This company operates an electric-furnace plant and rolling-mill in Hawaii that produces 75,000 tons a year. Cominco/Western serves Western Canadian customers in the mining, milling, lumbering and construction industries with a range of steel and steel products that includes hot-rolled bar and light structural merchant-mill shapes such as channels, angles, flats, rounds, squares and reinforcing bar, as well as a wide variety of hot-forged standard, special and custom fasteners.

In Quebec, Sidbec-Dosco is making rapid strides toward joining the ranks of the integrated producers in Canada. This will occur when the company begins receiving direct reduced pellets from its Midland-Ross "Midrex" plant -- now under construction at Contrecoeur Works -- for its new electric furnaces. The expansion and modernization program will eventually raise Sidbec-Dosco's raw-steel capacity to 1.5 million tons a year by 1980.

Sidbec-Dosco makes such basic products as hot- and cold-rolled sheet, bars, wire rod, re-bars, small and intermediate shapes and skelp at two locations in Quebec. It also manufactures secondary products such as wire and wire products, fasteners, steel joists and roof-decking in Montreal and Toronto.

Investments

The steel companies in Canada that have made substantial investments in plant and equipment recently are the Algoma Steel Corporation in Sault Ste. Marie, Ontario; Dominion Foundries and Steel Ltd. (Dofasco) and the Steel Company of Canada Ltd. (Stelco) in Hamilton, Ontario; Sidbec/Dosco Limited in Quebec; and the Sydney Steel Corporation (Sysco) in Nova Scotia. Other Canadian companies, including Atlas Steels, Interprovincial Steel and Pipe Corporation Ltd. (Ipsco), Slater Steel Industries Limited (Sivaco), and Quebec Steel Products, have also initiated expansion plans.

With the exception of the pipe and tube mills, the wire and fastener plants and the forging industry, less investment has been made relatively on expansion by the smaller manufacturers of secondary-steel products in Canada. There has been some expansion in the secondary sector during the past three years. The larger primary-steel companies have increased investment in the secondary sector to more than double their shipments of manufactured products, particularly for use in automotive parts and in structural steel. Considerable investment has been directed toward rationalization and pollution-control. The iron and steel foundries are investing heavily in pollution-abatement equipment. The steel-fabricating plants are investing in modernizing their equipment. The forging and metal-powder plants are not expanding their facilities.

Most investment has been directed to the expansion of capacity in flat-rolled products; the net result may be a capacity of 20 million ingot tons by 1980, of which ten million tons will be directed to flat-rolled products. The bulk of the investment in expansion plans for the steel industry has been concentrated in Ontario, Quebec and Nova Scotia. There has been considerable effort recently on the part of provincial authorities across Canada to encourage the establishment of a basic steel industry in particular provinces.

Foreign investment

There is a certain amount of foreign investment in the Canadian steel industry. Two of the steel companies (Atlas and Crucible) are 100 percent foreign-owned. Atlas is 100 percent owned by Rio Algom, which is part of Britain's Rio Tinto Group. Crucible is 100 percent owned by Colt Industries of the United States. British Steel, through Stanton Pipe, has acquired 51 per cent of the stock of Slater Steel. It is estimated that foreign interests hold less than 5 per cent of Dofasco shares. Stanley Steel is a subsidiary of the Stanley Company in the U.S. and Union Drawn Steel also has U.S. ownership. Last year, Stanton Pipe, a subsidiary of the British Steel Corporation, acquired 51 percent equity in Slater Steel, which owns Burlington Steel in Hamilton, Ontario. The British Steel Corporation has also acquired, through Slater Steel, a 25 percent interest in Ipsco. While the Algoma Steel Corporation purchased the current assets of Mannesmann Tube Company Ltd. in Sault Ste. Marie, Ontario, last year and leased Mannesmann's seamless-tube plant for a term of 15 years, with an option to purchase the plant, Mannesmann of Germany still holds 25 per cent of Algoma's outstanding shares, the largest single block, and it has three of its executives on Algoma's board of directors.

The year 1972 saw, and 1973 will see, the start-up of major new facilities designed to move Stelco's Hilton Works towards an annual capacity target of six million ingot tons and to increase the company's production capability for a number of its finished products. Stelco's new coke-oven battery was completed in the fall of 1972 and the opportunity presented by the previously-mentioned re-line of their largest blast furnace has been taken to introduce some modifications in order to help satisfy the increased hot-metal requirements of the basic oxygen. The third bloom and billet mill has begun operations, a new tinning-line was completed late last year, and the company's capacity to produce bar products will be increased next year when the conversion of a rod mill to a bar mill is completed. Construction is under way on the new spiral-weld pipe mill at Welland, the steel-making plant in Contrecoeur, as well as the increase in steel-making capacity at Edmonton.

Technology

There are, currently, three major technological developments that hold promise for the industry. One of these, the increased use of basic-oxygen furnaces, is imminent, while the others -- increased use of continuous casting and the introduction of direct-reduction steel-making -- are farther down the line. Furthermore, the addition of new and more modern facilities is expected to take place at a higher rate than during the past several years.

By the end of 1971, basic-oxygen furnaces accounted for 43.3 per cent of steel-making capacity, open-hearth capacity amounted to 34.8 per cent, while electric-arc furnaces totalled 21.9 per cent. The advantage of basic-oxygen capacity is the shorter batch-time, with a tap-to-tap span of approximately 45 minutes to one hour (as against six to eight hours for most modern open-hearth). The lower capital costs, as well as lower down-time and labour-overhead unit costs, can result in total cost savings ranging from $2.00 to $10.00 a ton, depending on the efficiency of the open-hearth replaced. The general Canadian experience involves savings of $4.00 to $5.00 a ton. Additions to basic-oxygen capacity include the new 2.8-million-ton basic-oxygen shop at Stelco, which came on stream in early 1972, and the new two-furnace shop to be added at Algoma, which will be operating in early 1973. Sydney Steel is planning the conversion of their open-hearth shop to make use of the submerged-injection process. As these facilities are changed over, presumably basic-oxygen furnaces will account for close to 65 per cent of Canadian crude-steel capacity by 1975.

The further development of direct reduction is going forward. Concast technology involves the continuous casting of molten steel from the steel-making furnaces into water-cooled moulds, where it solidifies and is then cut into semi-finished forms. Potential cost benefits include operating savings gained through circumventing the first three steps in finishing steel (ingot moulds, soaking pits and blooming or slabbing mills), lower capital costs and a significant saving in scrap loss. To date, the experience of the Canadian majors with concast is indicative of the innovative nature of the technology; there have been all of the technical, product and consumer-acceptance difficulties normally associated with technological innovation. These problems are gradually being worked out. Stelco plans to concast at

Contrecoeur, and will replace the existing casting machine at Edmonton as part of the expansion of the Edmonton works. The industry will be watching the progress of Algoma's concast facility, which is the first slab-casting unit as opposed to billet casting. It is widely agreed that, in a longer-term perspective, continuous casting is one of the keys to more efficient steel-making. Sidbec/Dosco is installing the direct-reduction process in conjunction with its expansion at Contrecoeur. Quebec Steel Products will use concast in its new facility.

Direct reduction is a relatively recent innovation in steel-making technology. The process involves grinding iron ore to a fine-particle size and compressing the particles into iron briquettes. Heating in a reducing atmosphere produces briquettes of up to 95 percent pure iron. Briquettes can be charged directly into an electric-arc furnace-coming out as steel. As yet, no integrated facility uses this process and a great number of technical difficulties have to be surmounted. Stelco is one of the pioneers in direct reduction and a member of an international consortium that has researched and developed the SL/RN (Stelco-Lurgi-Republic-National) direct-reduction process. The company has indicated that it might use this process at its Nanticoke development, although the final decision has been delayed and nothing definite has yet come out; the technology is not sufficiently advanced to proceed at present.

Again, the normal replacement and additions to facilities will be beneficial to the industry. However, the Canadian industry is, by and large, an efficient and modern grouping; thus, the impact of new additions is less noticeable from a productivity standpoint. The industry seems to feel that the findings of new efficiencies is becoming more and more difficult. High levels of spending on capital projects for anti-pollution devices involve an additional cost-burden for the industry -- if only over the short term.(4)

Domestic demand

The construction industry is the largest user of steel, accounting for an estimated 28 per cent - 30 per cent of domestic shipments. This total include 20 per cent to the construction industry directly and an estimated 8 per cent to 10 per cent from steel shipped to warehouses. Over the past five years, the construction industry has shown only marginal real growth. This performance is mirrored in the 3.0 percent annual growth of steel shipments to the construction industry.

Domestic shipments to the automotive and aircraft industries amount to about 11 per cent of total domestic shipments. The major automobile companies, either directly, or indirectly through auto-parts supplies, are believed to account for over 90 per cent of this total. The impetus to growth in this market goes back to 1965 with the signing of the United States/Canadian Automotive Free Trade Agreement. The success of the Agreement from the steel industry's point of view can be gauged by the 8.6 percent annual increase since 1965 in shipments to the domestic automotive industry.

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(4) Appendix IV provides a table showing trends in steel-making technology.

Pipes and tubes provide a market particularly promising for the Canadian steel industry. The promise seems greatest for pipe of the large-diameter variety, primarily for the pipeline construction required by oil and natural-gas discoveries in the Canadian North. Stelco's 140" plate-mill has a limited capacity for making steel wide enough for 42" diameter, a facility that has only recently come on stream. The progress of spiral-weld technology and the application of this technology to wide-diameter pipe is being pursued by Stelco as well as by pipe-producing companies such as Canadian Phoenix and Portable Pipe Mills. Ipsco is the only Canadian company already involved in the production and sale of spiral-weld pipe.

With the normal increments, in addition to pipeline construction related to new discoveries, growth of 7 per cent to 8 per cent for steel requirements from pipe demand seems reasonable, if not conservative. In all probability this growth will not be smooth, as the unravelling of the major projects is still unclear.

The remaining 45 per cent of demand is accounted for by 13 other end-use categories. Items such as wire and wire products should move with the construction pattern, showing growth of about 5 to 6 per cent annually. It is not unreasonable to expect steel shipments to natural-resource industries to increase at a rate of over 6 per cent. Appliances should be more in line with consumer-durables spending levels, with 5 to 6 percent annual growth-rate a reasonable projection. Containers present a more stable and dependable growth pattern, though increasing competition from aluminum and other products will probably keep the growth in tinplate in the 4 to 5 percent area. Other areas, such as railway vehicles and tracks, and agricultural equipment, will probably show slower and less dependable performance, with a likely growth of 2 to 3 per cent annually.

Some steel-industry observers have remarked that a 6 percent growth-rate for apparent steel consumption is too optimistic because of something they refer to as "market saturation". While this forecast is not more than the Canadian market growth experienced during the late Fifties and Sixties, it far exceeds the comparable American growth-rate of 3.8 per cent a year during the past 15 years. There has been a relatively conservative rate of real economic growth, and this decade is likely to see particularly heavy steel demands originating from the capital-intensive resource and energy industries.

The growth in the market for steel in Canada until about 1980, as well as the opportunities for exports, will continue to be one of the Canadian steel industry's major strengths. There is, however, an important distinction between the Canadian steel market of the future and that of the past in that most rolled-steel products are now manufactured domestically and imports are largely price-competitive. Consequently, to displace or even resist the growth of imports will be a much more difficult task than was the case in the Fifties and early Sixties.

Apparent rolled-steel consumption in Canada during 1973 is expected to increase by 7 per cent, to 10.5 million product tons. This forecast is based on Canadian real economic growth in excess of 6 per cent, an increase in current dollar non-residential construction spending of 11 per cent, a continued high level of housing starts and completions, and a levelling-off in the import penetration of the North American automobile market by Europe and Japan.

Foreign trade

There has been a gradual increase in Canadian steel exports over the last 20 years. The ratio of exports to total shipments rose from 4 per cent to 14 per cent during this period. The largest customer for Canadian steel is the United States; Latin America is a distant second, and relatively small amounts are exported to European countries and to Southeast Asia. While rolling-mill products constitute the bulk of industry sales, considerable amounts of pig iron are sold outside the country.

The growth of the export sector has averaged 12.8 per cent over the past five years. The United States is Canada's largest foreign market, accounting for an average of 66.4 per cent of exports since 1968, the largest part of which, an estimated 33 per cent, was accounted for by the automobile industry. Sales to other countries should continue to vary according to the needs of the Canadian industry to generate exports and the ability of their economies to absorb these. In this respect, trends are difficult to project, as conditions change very quickly. The growth prospects in non-American markets appear promising considering the currency that realignments should add to Canadian competitiveness in export markets. The large increase in Canadian capacity through 1975 should motivate Canadian producers to become more aggressive in export markets; and the excellent reputation of Canadian tin-plate and Canadian production in general in export markets gives the industry an entry into developing markets.

Steel exports are expected to grow substantially in 1973 mainly because of the small growth in 1972 but also because of the continued strengthening of the non-American and American economies. Steel imports are expected to show little increase next year but will still account for more than 14 per cent of apparent consumption. In total, rolled-steel-product shipments from Canadian mills are expected to reach a record level of 10.5 million product tons in 1973, up almost 10 per cent from the 1972 estimate.

Imports provided about 19 per cent of apparent domestic consumption in 1971. Although the Canadian steel industry has grown rapidly in recent years, its capacity has not been large enough to satisfy peak demands that occur during periods of strong growth in the economy. Steel imported into Canada fits two major classifications. One type is imports to fill capacity deficiencies in the Canadian industry; these result primarily because the limited market in Canada does not justify domestic production of certain products. The other type of capacity deficiency can occur when peak domestic demand overtaxes Canadian capacity or strikes in major Canadian mills cause a shortfall.

The primary gap deficiencies have usually been in large structural shapes, wide plate, special steel products, some of the alloy steels, and odd sizes of conventional hot-rolled and cold-rolled products. Several additions to Canadian capacity have partially filled the gap. Imports of stainless and specialty steels, particularly from Japan and Sweden, are beginning to become a problem. The recent start-up of Algoma's $70-million 166-inch plate-mill will increase domestic participation in the wide-plate and large-diameter pipe markets. Dofasco's new 56-inch cold-mill, which will stress the development of "electrical" steels, represents an additional move on behalf of Canadian producers to displace imports. While these developments are evidence, by and large, of a shrinking gap, the environment that historically has kept domestic mills out of specialty products and sizes has changed only in degree -- the Canadian market is, in most cases, still not sufficiently large. At the same time, the additional four million tons of capacity projected for the Canadian industry from 1971 to 1975 should alleviate, at least in part, added import requirements in periods of peak demand.

Foreign producers competing in Canadian markets must do so on a regional, as opposed to a national basis. With transportation costs high relative to steel's value, factors of location and geography divide Canada regionally so far as the marketing of steel is concerned.

Tariff and non-tariff barriers

For the most part, international trade in iron ore and raw steel is conducted free of tariffs, but the flow of trade is controlled through quota mechanisms in the U.S.A., Europe and Japan. There are protective tariffs, taxes and import restrictions on many primary and secondary steel products in various countries. Canada has no import restrictions on trade in iron and steel, and Canadian tariff is moderate.

Appendix I

STEEL-ROLLING MILLS IN CANADA

(by provinces)

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
ALBERTA		
Steel Co. of Canada Limited, Edmonton Steel Works, P.O. Box 2348, Edmonton, Alberta	Edmonton, Alta.	Concrete reinforcing bars, channels, structural angles, grinding balls and rods, merchant bars, grader blades
Western Canada Steel Limited, 450 Southeast Marine Drive, Vancouver 15, B.C.	52nd St. & 26th Ave. S.E., Forest Lawn, Alberta	Concrete reinforcing bars
BRITISH COLUMBIA		
Western Canada Steel Limited, 450 Southeast Marine Drive, Vancouver 15, B.C.	Vancouver, B.C.	Concrete reinforcing bars, hot-rolled merchant bars and light structural shapes including channels, angles, flats, rounds, squares, grinding rods; track spikes, standard, special and custom fasteners, and forgings
MANITOBA		
Dominion Bridge Company Limited, Manitoba Rolling Mills Division, P.O. Box 2500, Selkirk, Manitoba	Selkirk, Man.	Steel reinforcing merchant bars, flats, rounds, squares, angles, etc.

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
SASKATCHEWAN		
Interprovincial Steel and Pipe Corp., Ltd., P.O. Box 1670, Regina, Sask.	Armour Siding Regina, Sask.	Steel plate, skelp, hot-rolled sheets and coils, steel pipe, structural tubing, oil-well casing and line pipe; large-diameter spiral-weld pipe to API specifications
NEWFOUNDLAND		
Newfoundland Steel (1968) Company Ltd., St. John's, Nfld	Octogon Pond, Newfoundland	Concrete reinforcing bars and merchant-mill products, grinding balls
NOVA SCOTIA		
Enamel & Heating Products, Ltd., Sackville, N.B.	Amherst, N.S. (Plant 4)	Concrete reinforcing bars, merchant bars, wharf and machine bolts
Sydney Steel Corp., Sydney, Nova Scotia	Sydney, N.S.	Blooms, billets and slabs, rails, tie plates, mine arch and reinforcing bars
ONTARIO		
The Algoma Steel Corporation Ltd., Steelworks Division, Sault Ste. Marie, Ont.	Sault Ste. Marie, Ont.	Blooms, billets and slabs, heavy and light rails, rail fastenings, heavy and light structurals, parallel flange beams, carbon merchant bars, tube rounds, grinding balls and rods, sheared and universal plate, reinforcing bars, hot-rolled strip and sheet,

Appendix I

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
The Algoma Steel Corporation Ltd., (Continued)		skelp, cold-rolled strip and sheet, electrical sheet and strip
Atlas Steels, Division of Rio Algom Mines, Ltd.	Welland, Ont.	Tool, alloy and stainless steels; bars, billets, high-speed steel, hollow and solid mining drill steel, machinery steels, aircraft steels; stainless steels: hot- and cold-rolled sheet to 72" wide and strip to 18" wide, and welded tubing, bar, wire and special forged and machined sections
Burlington Steel Division of Slater Steel Industries Ltd., Sherman Avenue, North, Hamilton, Ontario	Hamilton, Ont.	Merchant and concrete reinforcing bars, steel rounds, squares, flats, angles, channels, agricultural shapes, steel fence-posts, steel grinding balls
Dominion Foundries and Steel Limited, Burlington St. East, Hamilton, Ontario	Hamilton, Ont.	Steel plate, skelp, hot-rolled sheets, coils and strip, galvanized sheets and coils and strip, cold-rolled sheets, coils and strip; electrical sheets, coils and strip; porcelain enamelling sheets, coils and strip; blue plate; electrolytic tinplate, sheets and coils; tin-

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
Dominion Foundries and Steel Limited, (Continued)		mill black plate, sheets and coils; pre-coated steels and castings
Lake Ontario Steel Company Ltd., Whitby, Ontario	Whitby, Ont.	Concrete reinforcing bars, steel rounds in straights and coils, angles, channels, forging flats, low alloy bars and grader blades
Stanley Steel Co. Limited, 57 Gerrard Street, Hamilton, Ontario	Hamilton, Ont.	Cold-rolled strip steel
The Steel Co. of Canada Limited, Hilton Works, Hamilton, Ontario	Hamilton, Ont.	Booms, billets, slabs, wire rods, hot-rolled products including carbon and alloy merchant bars, bolt, nut and spike rods, light structural shapes, railway spikes, joint bars, tie-plates, reinforcing bars, washers, etc.; ships, tank structural, sheared and universal plate; hot-rolled coils, sheet and strip; cold reduced including galvanized coils; sheet and strip; black-plate coils, sheet and strip; electrolytic tinplate coils, sheet and strip; pre-painted sheets

Appendix I

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
QUEBEC		
Atlas Steels, Division of Rio Algom Mines, Ltd., Welland, Ont.	Tracy, Quebec	Stainless steel sheet and strip in widths up to 48"
Colt Industries (Canada) Ltd., (formerly Crucible Steel of Canada Ltd.) Sorel, Quebec	Sorel, Quebec	Stainless steel sheet and strip
Sidbec/Dosco Ltd., 507 Place d'Armes, Montreal 126, Que.	5870 St. Patrick St., Montreal 106, Quebec	Merchant and reinforcing bars, structural sections, hot- and cold-forged bolts, nuts, rivets, hi-strength bolts and nuts; heavy and fine high and low carbon wires, screws, steel nails; continuous buttweld pipe and nipples.
Dominion Steel and Coal Corporation Limited, (Controlled by Sidbec) P.O. Box 100, Contrecoeur, Que.	Contrecoeur, Quebec	Merchant and reinforcing bars in bar form and in coils, rods in coils; hot- and cold-rolled sheet and strip.
Steel Co. of Canada Limited, Hamilton, Ontario	McMaster Works, Contrecoeur, Quebec	Pipe and hollow structural tubing, merchant bar, reinforcing bar, and light structural shapes.

STEEL IN CANADA IN THE SEVENTIES

	1970	1971	1972 Projection	1973 Forecast
CAPACITY (A)				
Short Tons	13.7	15.0	15.2	15.4
Metric Tons	12.3	13.5	13.7	13.9
PRODUCTION (A)				
Short Tons	12.3	12.2	13.1	14.0
Metric Tons	11.2	11.0	11.9	12.6
DOMESTIC SHIPMENTS (B)				
Short Tons	7.8	8.0	8.5	10.0
Metric Tons	8.0	7.3	7.7	9.0
IMPORTS (B)				
Short Tons	1.3	2.0	1.8	1.8
Metric Tons	1.2	1.8	1.6	1.6
EXPORTS (B)				
Short Tons	1.4	1.4	1.3	1.5
Metric Tons	1.3	1.3	1.1	1.4
APPARENT CONSUMPTION (C)				
Short Tons	12.2	12.8	13.6	14.3
Metric Tons	11.1	11.5	12.4	12.8

NOTE: (A) The capacity and production statistics refer to ingot steel, i.e. pig iron, ferro-alloys, steel ingots and castings.

(B) These figures refer to ingots and rolled steel.

(C) Apparent consumption equals production plus imports minus exports, and hence combines A and B.

SOURCE: 1970 and 1971 figures are from Statistics Canada.
1972 and 1973 figures are estimates based on an exchange of views with steel industry officials and consultants.

ROLLED STEEL PRODUCTS IN CANADA IN THE SEVENTIES

		1970	1971	1971 (6 Mos.)	1972 (6 Mos.)	Percentage Change
Production of Rolled Steel (domestic shipments)	(a) Short tons	7,756,911	8,002,584	3,928,940	4,392,538	+ 10.6%
	(b) Metric tons	7,037,023	7,259,896	3,564,310	3,984,884	
Imports of Rolled Steel	(a) Short tons	1,314,586	1,985,160	693,077	956,077	+ 37.9%
	(b) Metric tons	1,192,584	1,800,925	628,755	867,347	
Exports of Rolled Steel	(a) Short tons	1,446,086	1,399,311	801,621	673,106	- 16.1%
	(b) Metric tons	1,311,880	1,269,446	727,840	610,637	
Apparent Consumption of Rolled Steel	(a) Short tons	7,625,411	8,588,433	3,820,396	4,675,509	+ 19.0%
	(b) Metric tons	6,917,727	7,791,375	3,465,840	4,241,594	
Production of Rolled Steel (ingot steel)	(a) Short tons	12,346,132	12,169,552	6,118,581	6,651,224	+ 8.7%
	(b) Metric tons	11,200,337	11,040,145	5,550,740	6,033,950	
Imports of Rolled Steel	(a) Short tons	1,314,586	1,985,160	693,077	956,077	+ 37.9%
	(b) Metric tons	1,192,584	1,800,925	628,755	867,347	
Exports of Rolled Steel	(a) Short tons	1,446,086	1,399,311	801,621	673,106	- 16.1%
	(b) Metric tons	1,311,880	1,269,446	727,226	610,637	
Apparent Consumption of Rolled Steel	(a) Short tons	12,214,632	12,755,401	6,010,037	6,934,195	+ 15.5%
	(b) Metric tons	11,081,041	11,571,624	5,452,269	6,290,660	

SOURCE: STATISTICS CANADA

Appendix III

CANADA - STEELMAKING CAPACITY

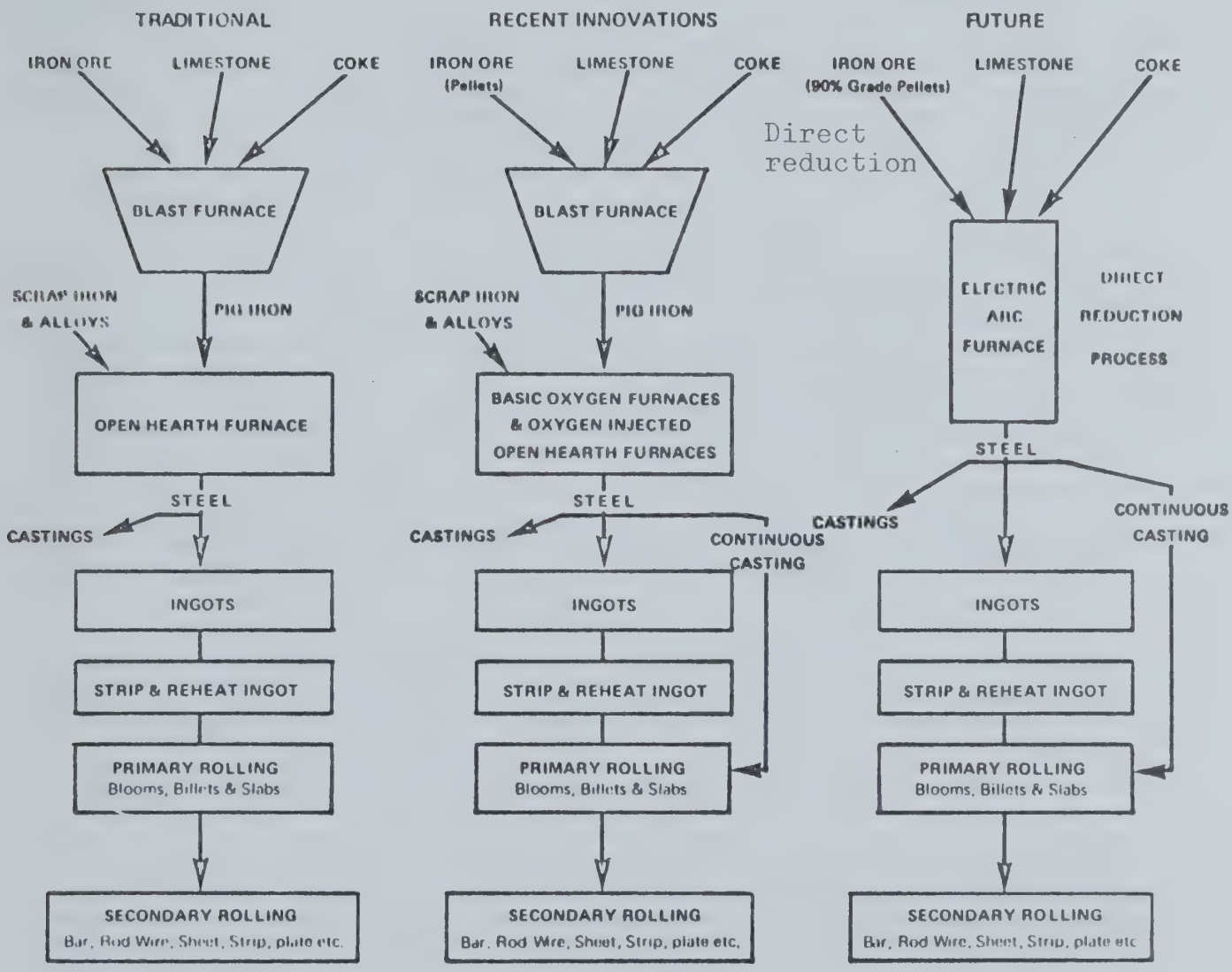
1 January 1973

Company & Location	Short Tons
Steelmaking	
The Algoma Steel Corporation, Limited Sault Ste. Marie, Ontario	2,600,000
Burlington Steel Company (a division of Slater Steel Industries Ltd.) Hamilton, Ontario	225,000
Dominion Bridge Company Limited (Manitoba Rolling Mills) Selkirk, Manitoba	160,000
Dominion Foundries & Steel Limited (Dofasco) Hamilton, Ontario	2,920,850
Sidbec-Dosco Limited Montreal, Quebec	380,000
Sidbec-Dosco Limited Contrecoeur, Quebec	500,000
Enamel & Heating Products Limited Sackville, New Brunswick	24,000
Interprovincial Steel & Pipe Corporation Ltd. Regina, Saskatchewan	600,000
Lake Ontario Steel Company Limited Whitby, Ontario	300,000
Newfoundland Steel (1968) Company Ltd. St. John's, Newfoundland	40,000
The Steel Company of Canada Ltd. (Stelco) Edmonton, Alberta	128,000
The Steel Company of Canada Ltd. (Stelco) Hamilton, Ontario	5,800,000

Company & Location	Short Tons
Steelmaking (continued)	
Sydney Steel Corporation (Sysco) Sydney, Nova Scotia	1,100,000
Western Canada Steel Limited Calgary, Alberta	57,000
Western Canada Steel Limited Vancouver, B.C.	110,000
Castings	
Abex Industries of Canada Limited Joliette, Quebec	11,000
Abex Industries of Canada Limited Selkirk, Manitoba	7,000
CAE Machinery Limited Vancouver, B.C.	3,750
Canadian Steel Foundries Division (Hawker Siddeley Canada Ltd.) Montreal, Quebec	35,000
Canadian Steel Wheel Limited Montreal, Quebec	160,000
Dominion Engineering Works Limited Montreal, Quebec	15,000
Esco Limited Port Coquitlam, B.C.	9,000
Fahralloy (Wisconsin) Limited Orillia, Ontario	8,030
Griffin Steel Foundries Limited St. Hyacinthe, Quebec	52,500

Company & Location	Short Tons
Castings (Continued)	
Hudson Bay Mining & Smelting Company Ltd. Flin Flon, Manitoba	2,500
The Indiana Steel Products Co. of Canada Ltd. Kitchener, Ontario	8,500
Lynn MacLeod Metallurgy Limited Thetford Mines, Quebec	5,300
Manganese Steel Castings Limited Sherbrooke, Quebec	800
Neelon Steel Limited Sudbury, Ontario	5,000
Unitcast Division (Midland-Ross of Canada Ltd.) Sherbrooke, Quebec	3,000
Victoria Machinery Depot Company Limited Victoria, B.C.	600
Welmet Industries Limited Welland, Ontario	2,500
Specialty Steel; Forgings; Pig Iron	
Atlas Steels Company Welland, Ontario	200,000
Atlas Steels Company Tracy, Quebec	70,000
The Algoma Steel Corporation, Limited Port Colborne, Ontario	240,000
Crucible Steel Division (Colt Industries (Canada) Ltd.) Sorel, Quebec	40,000
Québec Iron & Titanium Corporation Sorel, Quebec	880,000
	16,720,580

TRENDS IN STEEL MAKING TECHNOLOGY



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THE CANADIAN STEEL INDUSTRY

(Prepared in the Iron and Steel Division,
Materials Branch, Department of Industry,
Trade and Commerce, Ottawa.)

By international standards, the Canadian steel industry is small, ranking twelfth in the world and producing approximately 1.9 per cent of the total world output. However, the industry experiences an above-average growth-rate of close to 7 per cent *per annum*, compared to the world average of just over 6 per cent. Capacity figures for the Canadian steel industry are 13.5 million short tons for 1972, 15.4 million for 1973, 16.3 million for 1974, and 16.9 million for 1975. The latter are estimates based on returns from the industry concerning its intentions. Production estimates are 12.7 million short tons for 1972, 13.2 million for 1973 and 14 million for 1974. Various estimates have been made for production to 1980, and these estimates range from 18 million to 24 million short tons.

The Canadian steel industry is operating at 90 percent capacity, which is high by international standards. It is a highly efficient, dynamic, active and modern industry. Productivity is good. It is competitive in price when competing on an equal basis. The Canadian industry has been in the forefront in some of the newest steelmaking technologies: BOF practices, continuous casting, direct reduction and the new bottom-blown open-hearth process. Considerable investment is being made in expansion projects.

The industry has come a long way in a short time. From 1736, when history records forged-iron production in the St. Maurice forges in New France until the 1940s, the industry was almost non-existent. Peak annual production amounted to about one million tons. From the 1940s onward, strong demand at home and abroad encouraged a high level of growth.

The pace has increased steadily. Large iron-ore mines have been opened up, additional units of open-hearth, blast furnaces and basic-oxygen furnaces have been installed, the electric-arc furnace has been developed, new rolling-mill facilities have been added, old mills have been expanded and modernized, and the list of products obtained from steel ingots has grown steadily. The industry has become more efficient and more diversified. It has more than tripled its productive capacity within the past decade, made

technological advances in almost every stage of operation, and developed a very satisfactory system of marketing and distribution.(1)

Location

Describing the Canadian steel industry as stretching from coast to coast is a slight exaggeration but, in a broad sense, it is true. From east to west, there is Newfoundland Steel in St. John's and on Cape Breton Island is located the Crown Corporation Sydney Steel Corporation (Sysco), owned by the Nova Scotia government. In British Columbia is located Western Canada Steel Ltd. (Cominco Ltd.). With few exceptions, companies have tended to locate close to markets.

Other integrated mills and a majority of the smaller steelmaking firms are concentrated in Ontario and Quebec. The Steel Company of Canada Ltd. (Stelco), Dominion Foundries and Steel Ltd. (Dofasco) and the Algoma Steel Corporation (Algoma) are the three integrated mills in Ontario. These three firms account for about 80 per cent of Canadian steel production.

At Contrecoeur, Quebec, Sidbec-Dosco Ltd., with its new electric furnaces and Midland-Rose pelletized iron-ore reduction plant coming on stream, is the newest integrated steelmaker in Canada.

In addition to the six integrated facilities, there are a number of smaller steelmakers, whose plants use electric arc-furnaces and cold-scrap charges. Rounding out the industry are several facilities with only a variety of rolling-mills for finishing operations. And the industry includes one specialty producer -- Atlas Steels of Welland, Ontario. There are 47 Canadian plants with steelmaking capabilities. These range from the giant Stelco down to Quality Steel Foundries of Edmonton, Alberta, which can produce 1,000 tpy(2) for steel castings in two $1\frac{1}{2}$-ton electric furnaces.

The companies are distributed unevenly among the provinces. Newfoundland Steel is the only producer in that eastern province; in Manitoba are located the Manitoba Rolling Mills of Dominion Bridge; while Saskatchewan can claim only Interprovincial Steel and Pipe Corporation.

The heaviest concentration is, of course, in the highly-industrialized province of Ontario. Most of the big ones as rated by melting capacity -- Stelco, Dofasco and Algoma -- are located there. The province also has a number of medium-size producers, including Atlas, Burlington Steel Company, and Lake Ontario Steel Company, all in the 250-300,000 tpy range.

Quebec, which contains approximately 25 per cent of Canada's population but accounts for only about 12 per cent of the country's steel

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(1) Attached as Appendix III is a table showing Canadian steelmaking capacity as of January 1, 1973.

(2) tpy = short tons a year

consumption, has a representative group of companies. In addition to Sidbec-Dosco, the Quebec steel roster includes: Canadian Steel Foundries, rated at 102,000 tpy; Canadian Steel Wheel, 160,000 tpy; Atlas 70,000; and Griffin Steel Foundries 52,500. Seven other installations can produce between 3,600 and 42,000 tpy. Quebec's rolling-mill capacity, and indeed production, exceed raw-steel production.

In Nova Scotia, Sysco dominates the steel landscape, overshadowing two small companies, and the Stelco plant at Edmonton has, at 125,000 tpy, more than twice the capacity of the other three steel-plants in Alberta.

Western Canada Steel Limited accounts for most of the steel made in British Columbia, and five smaller firms also operate in the province.

To all intents and purposes, the Canadian steel industry is local-market oriented. The vast majority of mills compete in a local market, producing a special product (rebar, rods, sheet, strip, and so on) for that market. To some extent, Stelco, Algoma and Dofasco operate similarly. However, they do market their products throughout Canada, with penetration in differing markets.(3)

Product orientation

Stelco's product-line covers the widest range in Canada. Although the firm does not supply rails or structurals, its product "mix" covers almost all the remainder of the spectrum. Major products included are plate, hot- and cold-rolled sheet, tinplate, hot- and cold-rolled bars, reinforcing bars, wire and wire rods, pipes and tubing, fasteners, and forgings.

Dofasco's product-line is primarily limited to flat-rolled items and castings. Its carbon, alloy and steel castings -- up to 25,000 lbs -- include railroad-car products, steel valve-casings, and components for mining equipment. The flat-rolled line embraces hot-rolled sheet and strip, skelp, plate, floor-plate, cold-rolled sheet and strip, electrical sheets, enameling sheet, galvanized sheet and tinplate of many types, as well as pre-painted sheets, which are produced in a plant owned jointly with Stelco.

Dofasco's concentrated effort on serving the flat-rolled market, considered the fastest-growing in Canada, puts the firm in a more recession-proof posture than some of its competitors. Its best customers in flat-rolled products are domestic and include producers of consumer durables such as automative wholesalers and warehouses, agricultural machinery, construction, containers, machinery and tools, natural resources, appliances and utensils, other metal stampings and pressings and railway cars. Dofasco owns National Steel Car, a wholly-owned subsidiary that produces railroad cars.

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(3) Appendix I comprises a list of Canadian steel-rolling mills by province.

Located on the St. Mary's River, which connects Lakes Superior and Huron, Algoma Steel Corporation currently ranks as the No. 3 producer in the Canadian industry, but may reclaim second place when a current expansion program lifts its steel-making capacity to 4 million short tons a year early in 1973.

The most western of the "Big Three", Algoma, derives both bonuses and deficits from its geographical setting. For example, the firm probably exports a greater percentage of its production to the U.S. than either Stelco or Dofasco. It has an edge when it comes to markets in Western Canada, particularly as a supplier of plate to fabricators of large-diameter pipe. Algoma is Canada's sole producer of wide-flange beams, rolling sections up to 24 inches and welding sections up to 48 inches.

Among its facilities, Algoma operates the widest hot-strip mill in Canada, the 106-inch mill started in 1963, and the widest plate-mill, the new 166-inch mill completed late last year.

Sysco is the largest maker of railroad rails in Canada. Its rails are produced from vacuum-treated steel and can be produced to a length of 25 metres. Sysco's new rail-finishing mill, if not the most modern in the world, is one of the most modern. In addition to rails, Sysco can also supply tie-plates. Sysco is favoured by its location at tidewater, which has enabled it to secure a fair amount of export business since it began operations.

The westernmost steel-producer in Canada is Western Canada Steel Limited, a wholly-owned subsidiary of Cominco Ltd., with plants in Calgary and Vancouver. Its current capacity is 175,000 tons a year of electric-furnace steel and hot-rolled carbon bars and shapes. This company operates an electric-furnace plant and rolling-mill in Hawaii that produces 75,000 tons a year. Cominco/Western serves Western Canadian customers in the mining, milling, lumbering and construction industries with a range of steel and steel products that includes hot-rolled bar and light structural merchant-mill shapes such as channels, angles, flats, rounds, squares and reinforcing bar, as well as a wide variety of hot-forged standard, special and custom fasteners.

In Quebec, Sidbec-Dosco is making rapid strides toward joining the ranks of the integrated producers in Canada. This will occur when the company begins receiving direct reduced pellets from its Midland-Ross "Midrex" plant -- now under construction at Contrecoeur Works -- for its new electric furnaces. The expansion and modernization program will eventually raise Sidbec-Dosco's raw-steel capacity to 1.5 million tons a year by 1980.

Sidbec-Dosco makes such basic products as hot- and cold-rolled sheet, bars, wire rod, re-bars, small and intermediate shapes and skelp at two locations in Quebec. It also manufactures secondary products such as wire and wire products, fasteners, steel joists and roof-decking in Montreal and Toronto.

Investments

The steel companies in Canada that have made substantial investments in plant and equipment recently are the Algoma Steel Corporation in Sault Ste. Marie, Ontario; Dominion Foundries and Steel Ltd. (Dofasco) and the Steel Company of Canada Ltd. (Stelco) in Hamilton, Ontario; Sidbec/Dosco Limited in Quebec; and the Sydney Steel Corporation (Sysco) in Nova Scotia. Other Canadian companies, including Atlas Steels, Interprovincial Steel and Pipe Corporation Ltd. (Ipsco), Slater Steel Industries Limited (Sivaco), and Quebec Steel Products, have also initiated expansion plans.

With the exception of the pipe and tube mills, the wire and fastener plants and the forging industry, less investment has been made relatively on expansion by the smaller manufacturers of secondary-steel products in Canada. There has been some expansion in the secondary sector during the past three years. The larger primary-steel companies have increased investment in the secondary sector to more than double their shipments of manufactured products, particularly for use in automotive parts and in structural steel. Considerable investment has been directed toward rationalization and pollution-control. The iron and steel foundries are investing heavily in pollution-abatement equipment. The steel-fabricating plants are investing in modernizing their equipment. The forging and metal-powder plants are not expanding their facilities.

Most investment has been directed to the expansion of capacity in flat-rolled products; the net result may be a capacity of 20 million ingot tons by 1980, of which ten million tons will be directed to flat-rolled products. The bulk of the investment in expansion plans for the steel industry has been concentrated in Ontario, Quebec and Nova Scotia. There has been considerable effort recently on the part of provincial authorities across Canada to encourage the establishment of a basic steel industry in particular provinces.

Foreign investment

There is a certain amount of foreign investment in the Canadian steel industry. Two of the steel companies (Atlas and Crucible) are 100 percent foreign-owned. Atlas is 100 percent owned by Rio Algom, which is part of Britain's Rio Tinto Group. Crucible is 100 percent owned by Colt Industries of the United States. British Steel, through Stanton Pipe, has acquired 51 per cent of the stock of Slater Steel. It is estimated that foreign interests hold less than 5 per cent of Dofasco shares. Stanley Steel is a subsidiary of the Stanley Company in the U.S. and Union Drawn Steel also has U.S. ownership. Last year, Stanton Pipe, a subsidiary of the British Steel Corporation, acquired 51 percent equity in Slater Steel, which owns Burlington Steel in Hamilton, Ontario. The British Steel Corporation has also acquired, through Slater Steel, a 25 percent interest in Ipsco. While the Algoma Steel Corporation purchased the current assets of Mannesmann Tube Company Ltd. in Sault Ste. Marie, Ontario, last year and leased Mannesmann's seamless-tube plant for a term of 15 years, with an option to purchase the plant, Mannesmann of Germany still holds 25 per cent of Algoma's outstanding shares, the largest single block, and it has three of its executives on Algoma's board of directors.

The year 1972 saw, and 1973 will see, the start-up of major new facilities designed to move Stelco's Hilton Works towards an annual capacity target of six million ingot tons and to increase the company's production capability for a number of its finished products. Stelco's new coke-oven battery was completed in the fall of 1972 and the opportunity presented by the previously-mentioned re-line of their largest blast furnace has been taken to introduce some modifications in order to help satisfy the increased hot-metal requirements of the basic oxygen. The third bloom and billet mill has begun operations, a new tinning-line was completed late last year, and the company's capacity to produce bar products will be increased next year when the conversion of a rod mill to a bar mill is completed. Construction is under way on the new spiral-weld pipe mill at Welland, the steel-making plant in Contrecoeur, as well as the increase in steel-making capacity at Edmonton.

Technology

There are, currently, three major technological developments that hold promise for the industry. One of these, the increased use of basic-oxygen furnaces, is imminent, while the others -- increased use of continuous casting and the introduction of direct-reduction steel-making -- are farther down the line. Furthermore, the addition of new and more modern facilities is expected to take place at a higher rate than during the past several years.

By the end of 1971, basic-oxygen furnaces accounted for 43.3 per cent of steel-making capacity, open-hearth capacity amounted to 34.8 per cent, while electric-arc furnaces totalled 21.9 per cent. The advantage of basic-oxygen capacity is the shorter batch-time, with a tap-to-tap span of approximately 45 minutes to one hour (as against six to eight hours for most modern open-hearth). The lower capital costs, as well as lower down-time and labour-overhead unit costs, can result in total cost savings ranging from $2.00 to $10.00 a ton, depending on the efficiency of the open-hearth replaced. The general Canadian experience involves savings of $4.00 to $5.00 a ton. Additions to basic-oxygen capacity include the new 2.8-million-ton basic-oxygen shop at Stelco, which came on stream in early 1972, and the new two-furnace shop to be added at Algoma, which will be operating in early 1973. Sydney Steel is planning the conversion of their open-hearth shop to make use of the submerged-injection process. As these facilities are changed over, presumably basic-oxygen furnaces will account for close to 65 per cent of Canadian crude-steel capacity by 1975.

The further development of direct reduction is going forward. Concast technology involves the continuous casting of molten steel from the steel-making furnaces into water-cooled moulds, where it solidifies and is then cut into semi-finished forms. Potential cost benefits include operating savings gained through circumventing the first three steps in finishing steel (ingot moulds, soaking pits and blooming or slabbing mills), lower capital costs and a significant saving in scrap loss. To date, the experience of the Canadian majors with concast is indicative of the innovative nature of the technology; there have been all of the technical, product and consumer-acceptance difficulties normally associated with technological innovation. These problems are gradually being worked out. Stelco plans to concast at

Contrecoeur, and will replace the existing casting machine at Edmonton as part of the expansion of the Edmonton works. The industry will be watching the progress of Algoma's concast facility, which is the first slab-casting unit as opposed to billet casting. It is widely agreed that, in a longer-term perspective, continuous casting is one of the keys to more efficient steel-making. Sidbec/Dosco is installing the direct-reduction process in conjunction with its expansion at Contrecoeur. Quebec Steel Products will use concast in its new facility.

Direct reduction is a relatively recent innovation in steel-making technology. The process involves grinding iron ore to a fine-particle size and compressing the particles into iron briquettes. Heating in a reducing atmosphere produces briquettes of up to 95 percent pure iron. Briquettes can be charged directly into an electric-arc furnace-coming out as steel. As yet, no integrated facility uses this process and a great number of technical difficulties have to be surmounted. Stelco is one of the pioneers in direct reduction and a member of an international consortium that has researched and developed the SL/RN (Stelco-Lurgi-Republic-National) direct-reduction process. The company has indicated that it might use this process at its Nanticoke development, although the final decision has been delayed and nothing definite has yet come out; the technology is not sufficiently advanced to proceed at present.

Again, the normal replacement and additions to facilities will be beneficial to the industry. However, the Canadian industry is, by and large, an efficient and modern grouping; thus, the impact of new additions is less noticeable from a productivity standpoint. The industry seems to feel that the findings of new efficiencies is becoming more and more difficult. High levels of spending on capital projects for anti-pollution devices involve an additional cost-burden for the industry -- if only over the short term.(4)

Domestic demand

The construction industry is the largest user of steel, accounting for an estimated 28 per cent - 30 per cent of domestic shipments. This total include 20 per cent to the construction industry directly and an estimated 8 per cent to 10 per cent from steel shipped to warehouses. Over the past five years, the construction industry has shown only marginal real growth. This performance is mirrored in the 3.0 percent annual growth of steel shipments to the construction industry.

Domestic shipments to the automotive and aircraft industries amount to about 11 per cent of total domestic shipments. The major automobile companies, either directly, or indirectly through auto-parts supplies, are believed to account for over 90 per cent of this total. The impetus to growth in this market goes back to 1965 with the signing of the United States/Canadian Automotive Free Trade Agreement. The success of the Agreement from the steel industry's point of view can be gauged by the 8.6 percent annual increase since 1965 in shipments to the domestic automotive industry.

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(4) Appendix IV provides a table showing trends in steel-making technology.

Pipes and tubes provide a market particularly promising for the Canadian steel industry. The promise seems greatest for pipe of the large-diameter variety, primarily for the pipeline construction required by oil and natural-gas discoveries in the Canadian North. Stelco's 140" plate-mill has a limited capacity for making steel wide enough for 42" diameter, a facility that has only recently come on stream. The progress of spiral-weld technology and the application of this technology to wide-diameter pipe is being pursued by Stelco as well as by pipe-producing companies such as Canadian Phoenix and Portable Pipe Mills. Ipsco is the only Canadian company already involved in the production and sale of spiral-weld pipe.

With the normal increments, in addition to pipeline construction related to new discoveries, growth of 7 per cent to 8 per cent for steel requirements from pipe demand seems reasonable, if not conservative. In all probability this growth will not be smooth, as the unravelling of the major projects is still unclear.

The remaining 45 per cent of demand is accounted for by 13 other end-use categories. Items such as wire and wire products should move with the construction pattern, showing growth of about 5 to 6 per cent annually. It is not unreasonable to expect steel shipments to natural-resource industries to increase at a rate of over 6 per cent. Appliances should be more in line with consumer-durables spending levels, with 5 to 6 percent annual growth-rate a reasonable projection. Containers present a more stable and dependable growth pattern, though increasing competition from aluminum and other products will probably keep the growth in tinplate in the 4 to 5 percent area. Other areas, such as railway vehicles and tracks, and agricultural equipment, will probably show slower and less dependable performance, with a likely growth of 2 to 3 per cent annually.

Some steel-industry observers have remarked that a 6 percent growth-rate for apparent steel consumption is too optimistic because of something they refer to as "market saturation". While this forecast is not more than the Canadian market growth experienced during the late Fifties and Sixties, it far exceeds the comparable American growth-rate of 3.8 per cent a year during the past 15 years. There has been a relatively conservative rate of real economic growth, and this decade is likely to see particularly heavy steel demands originating from the capital-intensive resource and energy industries.

The growth in the market for steel in Canada until about 1980, as well as the opportunities for exports, will continue to be one of the Canadian steel industry's major strengths. There is, however, an important distinction between the Canadian steel market of the future and that of the past in that most rolled-steel products are now manufactured domestically and imports are largely price-competitive. Consequently, to displace or even resist the growth of imports will be a much more difficult task than was the case in the Fifties and early Sixties.

Apparent rolled-steel consumption in Canada during 1973 is expected to increase by 7 per cent, to 10.5 million product tons. This forecast is based on Canadian real economic growth in excess of 6 per cent, an increase in current dollar non-residential construction spending of 11 per cent, a continued high level of housing starts and completions, and a levelling-off in the import penetration of the North American automobile market by Europe and Japan.

Foreign trade

There has been a gradual increase in Canadian steel exports over the last 20 years. The ratio of exports to total shipments rose from 4 per cent to 14 per cent during this period. The largest customer for Canadian steel is the United States; Latin America is a distant second, and relatively small amounts are exported to European countries and to Southeast Asia. While rolling-mill products constitute the bulk of industry sales, considerable amounts of pig iron are sold outside the country.

The growth of the export sector has averaged 12.8 per cent over the past five years. The United States is Canada's largest foreign market, accounting for an average of 66.4 per cent of exports since 1968, the largest part of which, an estimated 33 per cent, was accounted for by the automobile industry. Sales to other countries should continue to vary according to the needs of the Canadian industry to generate exports and the ability of their economies to absorb these. In this respect, trends are difficult to project, as conditions change very quickly. The growth prospects in non-American markets appear promising considering the currency that realignments should add to Canadian competitiveness in export markets. The large increase in Canadian capacity through 1975 should motivate Canadian producers to become more aggressive in export markets; and the excellent reputation of Canadian tin-plate and Canadian production in general in export markets gives the industry an entry into developing markets.

Steel exports are expected to grow substantially in 1973 mainly because of the small growth in 1972 but also because of the continued strengthening of the non-American and American economies. Steel imports are expected to show little increase next year but will still account for more than 14 per cent of apparent consumption. In total, rolled-steel-product shipments from Canadian mills are expected to reach a record level of 10.5 million product tons in 1973, up almost 10 per cent from the 1972 estimate.

Imports provided about 19 per cent of apparent domestic consumption in 1971. Although the Canadian steel industry has grown rapidly in recent years, its capacity has not been large enough to satisfy peak demands that occur during periods of strong growth in the economy. Steel imported into Canada fits two major classifications. One type is imports to fill capacity deficiencies in the Canadian industry; these result primarily because the limited market in Canada does not justify domestic production of certain products. The other type of capacity deficiency can occur when peak domestic demand overtaxes Canadian capacity or strikes in major Canadian mills cause a shortfall.

The primary gap deficiencies have usually been in large structural shapes, wide plate, special steel products, some of the alloy steels, and odd sizes of conventional hot-rolled and cold-rolled products. Several additions to Canadian capacity have partially filled the gap. Imports of stainless and specialty steels, particularly from Japan and Sweden, are beginning to become a problem. The recent start-up of Algoma's $70-million 166-inch plate-mill will increase domestic participation in the wide-plate and large-diameter pipe markets. Dofasco's new 56-inch cold-mill, which will stress the development of "electrical" steels, represents an additional move on behalf of Canadian producers to displace imports. While these developments are evidence, by and large, of a shrinking gap, the environment that historically has kept domestic mills out of specialty products and sizes has changed only in degree -- the Canadian market is, in most cases, still not sufficiently large. At the same time, the additional four million tons of capacity projected for the Canadian industry from 1971 to 1975 should alleviate, at least in part, added import requirements in periods of peak demand.

Foreign producers competing in Canadian markets must do so on a regional, as opposed to a national basis. With transportation costs high relative to steel's value, factors of location and geography divide Canada regionally so far as the marketing of steel is concerned.

Tariff and non-tariff barriers

For the most part, international trade in iron ore and raw steel is conducted free of tariffs, but the flow of trade is controlled through quota mechanisms in the U.S.A., Europe and Japan. There are protective tariffs, taxes and import restrictions on many primary and secondary steel products in various countries. Canada has no import restrictions on trade in iron and steel, and Canadian tariff is moderate.

Appendix I

STEEL-ROLLING MILLS IN CANADA

(by provinces)

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
ALBERTA		
Steel Co. of Canada Limited, Edmonton Steel Works, P.O. Box 2348, Edmonton, Alberta	Edmonton, Alta.	Concrete reinforcing bars, channels, structural angles, grinding balls and rods, merchant bars, grader blades
Western Canada Steel Limited, 450 Southeast Marine Drive, Vancouver 15, B.C.	52nd St. & 26th Ave. S.E., Forest Lawn, Alberta	Concrete reinforcing bars
BRITISH COLUMBIA		
Western Canada Steel Limited, 450 Southeast Marine Drive, Vancouver 15, B.C.	Vancouver, B.C.	Concrete reinforcing bars, hot-rolled merchant bars and light structural shapes including channels, angles, flats, rounds, squares, grinding rods; track spikes, standard, special and custom fasteners, and forgings
MANITOBA		
Dominion Bridge Company Limited, Manitoba Rolling Mills Division, P.O. Box 2500, Selkirk, Manitoba	Selkirk, Man.	Steel reinforcing merchant bars, flats, rounds, squares, angles, etc.

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
SASKATCHEWAN		
Interprovincial Steel and Pipe Corp., Ltd., P.O. Box 1670, Regina, Sask.	Armour Siding Regina, Sask.	Steel plate, skelp, hot-rolled sheets and coils, steel pipe, structural tubing, oil-well casing and line pipe; large-diameter spiral-weld pipe to API specifications
NEWFOUNDLAND		
Newfoundland Steel (1968) Company Ltd., St. John's, Nfld	Octogon Pond, Newfoundland	Concrete reinforcing bars and merchant-mill products, grinding balls
NOVA SCOTIA		
Enamel & Heating Products, Ltd., Sackville, N.B.	Amherst, N.S. (Plant 4)	Concrete reinforcing bars, merchant bars, wharf and machine bolts
Sydney Steel Corp., Sydney, Nova Scotia	Sydney, N.S.	Blooms, billets and slabs, rails, tie plates, mine arch and reinforcing bars
ONTARIO		
The Algoma Steel Corporation Ltd., Steelworks Division, Sault Ste. Marie, Ont.	Sault Ste. Marie, Ont.	Blooms, billets and slabs, heavy and light rails, rail fastenings, heavy and light structurals, parallel flange beams, carbon merchant bars, tube rounds, grinding balls and rods, sheared and universal plate, reinforcing bars, hot-rolled strip and sheet,

Appendix I

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
The Algoma Steel Corporation Ltd., (Continued)		skelp, cold-rolled strip and sheet, electrical sheet and strip
Atlas Steels, Division of Rio Algom Mines, Ltd.	Welland, Ont.	Tool, alloy and stainless steels; bars, billets, high-speed steel, hollow and solid mining drill steel, machinery steels, aircraft steels; stainless steels: hot- and cold-rolled sheet to 72" wide and strip to 18" wide, and welded tubing, bar, wire and special forged and machined sections
Burlington Steel Division of Slater Steel Industries Ltd., Sherman Avenue, North, Hamilton, Ontario	Hamilton, Ont.	Merchant and concrete reinforcing bars, steel rounds, squares, flats, angles, channels, agricultural shapes, steel fence-posts, steel grinding balls
Dominion Foundries and Steel Limited, Burlington St. East, Hamilton, Ontario	Hamilton, Ont.	Steel plate, skelp, hot-rolled sheets, coils and strip, galvanized sheets and coils and strip, cold-rolled sheets, coils and strip; electrical sheets, coils and strip; porcelain enamelling sheets, coils and strip; blue plate; electrolytic tinplate, sheets and coils; tin-

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
Dominion Foundries and Steel Limited, (Continued)		mill black plate, sheets and coils; pre-coated steels and castings
Lake Ontario Steel Company Ltd., Whitby, Ontario	Whitby, Ont.	Concrete reinforcing bars, steel rounds in straights and coils, angles, channels, forging flats, low alloy bars and grader blades
Stanley Steel Co. Limited, 57 Gerrard Street, Hamilton, Ontario	Hamilton, Ont.	Cold-rolled strip steel
The Steel Co. of Canada Limited, Hilton Works, Hamilton, Ontario	Hamilton, Ont.	Booms, billets, slabs, wire rods, hot-rolled products including carbon and alloy merchant bars, bolt, nut and spike rods, light structural shapes, railway spikes, joint bars, tie-plates, reinforcing bars, washers, etc.; ships, tank structural, sheared and universal plate; hot-rolled coils, sheet and strip; cold reduced including galvanized coils; sheet and strip; black-plate coils, sheet and strip; electrolytic tinplate coils, sheet and strip; pre-painted sheets

Appendix I

COMPANY AND ADDRESS	LOCATION OF PLANT	PRODUCT
QUEBEC		
Atlas Steels, Division of Rio Algom Mines, Ltd., Welland, Ont.	Tracy, Quebec	Stainless steel sheet and strip in widths up to 48"
Colt Industries (Canada) Ltd., (formerly Crucible Steel of Canada Ltd.) Sorel, Quebec	Sorel, Quebec	Stainless steel sheet and strip
Sidbec/Dosco Ltd., 507 Place d'Armes, Montreal 126, Que.	5870 St. Patrick St., Montreal 106, Quebec	Merchant and reinforcing bars, structural sections, hot- and cold-forged bolts, nuts, rivets, hi-strength bolts and nuts; heavy and fine high and low carbon wires, screws, steel nails; continuous buttweld pipe and nipples.
Dominion Steel and Coal Corporation Limited, (Controlled by Sidbec) P.O. Box 100, Contrecoeur, Que.	Contrecoeur, Quebec	Merchant and reinforcing bars in bar form and in coils, rods in coils; hot- and cold-rolled sheet and strip.
Steel Co. of Canada Limited, Hamilton, Ontario	McMaster Works, Contrecoeur, Quebec	Pipe and hollow structural tubing, merchant bar, reinforcing bar, and light structural shapes.

Appendix II

STEEL IN CANADA IN THE SEVENTIES

	1970	1971	1972 Projection	1973 Forecast
CAPACITY (A)				
Short Tons	13.7	15.0	15.2	15.4
Metric Tons	12.3	13.5	13.7	13.9
PRODUCTION (A)				
Short Tons	12.3	12.2	13.1	14.0
Metric Tons	11.2	11.0	11.9	12.6
DOMESTIC SHIPMENTS (B)				
Short Tons	7.8	8.0	8.5	10.0
Metric Tons	8.0	7.3	7.7	9.0
IMPORTS (B)				
Short Tons	1.3	2.0	1.8	1.8
Metric Tons	1.2	1.8	1.6	1.6
EXPORTS (B)				
Short Tons	1.4	1.4	1.3	1.5
Metric Tons	1.3	1.3	1.1	1.4
APPARENT CONSUMPTION (C)				
Short Tons	12.2	12.8	13.6	14.3
Metric Tons	11.1	11.5	12.4	12.8

NOTE: (A) The capacity and production statistics refer to ingot steel, i.e. pig iron, ferro-alloys, steel ingots and castings.

(B) These figures refer to ingots and rolled steel.

(C) Apparent consumption equals production plus imports minus exports, and hence combines A and B.

SOURCE: 1970 and 1971 figures are from Statistics Canada.
1972 and 1973 figures are estimates based on an exchange of views with steel industry officials and consultants.

ROLLED STEEL PRODUCTS IN CANADA IN THE SEVENTIES

		1970	1971	1971 (6 Mos.)	1972 (6 Mos.)	Percentage Change
Production of Rolled Steel (domestic shipments)	(a) Short tons	7,756,911	8,002,584	3,928,940	4,392,538	+ 10.6%
	(b) Metric tons	7,037,023	7,259,896	3,564,310	3,984,884	
Imports of Rolled Steel	(a) Short tons	1,314,586	1,985,160	693,077	956,077	+ 37.9%
	(b) Metric tons	1,192,584	1,800,925	628,755	867,347	
Exports of Rolled Steel	(a) Short tons	1,446,086	1,399,311	801,621	673,106	- 16.1%
	(b) Metric tons	1,311,880	1,269,446	727,840	610,637	
Apparent Consumption of Rolled Steel	(a) Short tons	7,625,411	8,588,433	3,820,396	4,675,509	+ 19.0%
	(b) Metric tons	6,917,727	7,791,375	3,465,840	4,241,594	
Production of Rolled Steel (ingot steel)	(a) Short tons	12,346,132	12,169,552	6,118,581	6,651,224	+ 8.7%
	(b) Metric tons	11,200,337	11,040,145	5,550,740	6,033,950	
Imports of Rolled Steel	(a) Short tons	1,314,586	1,985,160	693,077	956,077	+ 37.9%
	(b) Metric tons	1,192,584	1,800,925	628,755	867,347	
Exports of Rolled Steel	(a) Short tons	1,446,086	1,399,311	801,621	673,106	- 16.1%
	(b) Metric tons	1,311,880	1,269,446	727,226	610,637	
Apparent Consumption of Rolled Steel	(a) Short tons	12,214,632	12,755,401	6,010,037	6,934,195	+ 15.5%
	(b) Metric tons	11,081,041	11,571,624	5,452,269	6,290,660	

SOURCE: STATISTICS CANADA

Appendix III

CANADA - STEELMAKING CAPACITY

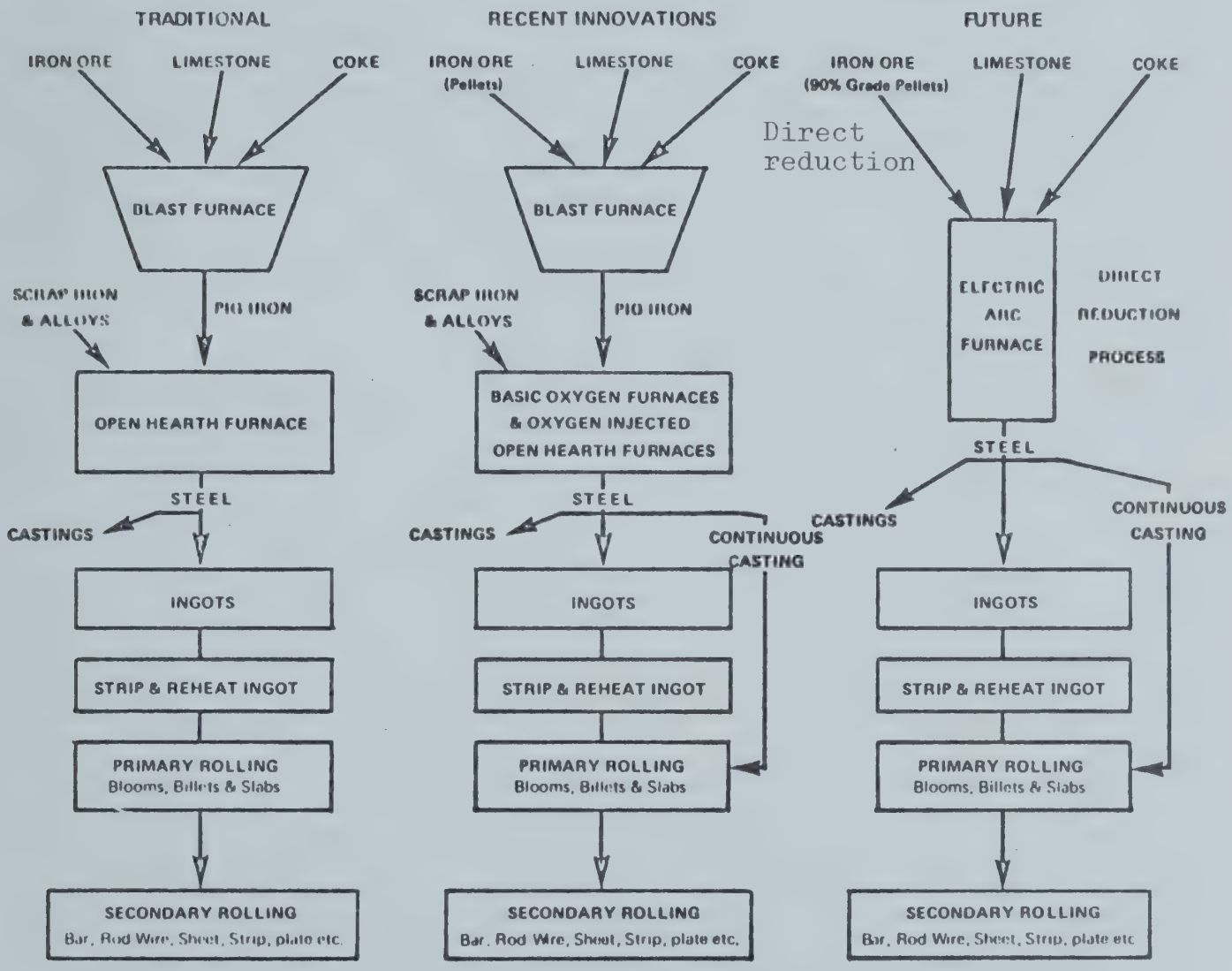
1 January 1973

Company & Location	Short Tons
Steelmaking	
The Algoma Steel Corporation, Limited Sault Ste. Marie, Ontario	2,600,000
Burlington Steel Company (a division of Slater Steel Industries Ltd.) Hamilton, Ontario	225,000
Dominion Bridge Company Limited (Manitoba Rolling Mills) Selkirk, Manitoba	160,000
Dominion Foundries & Steel Limited (Dofasco) Hamilton, Ontario	2,920,850
Sidbec-Dosco Limited Montreal, Quebec	380,000
Sidbec-Dosco Limited Contrecoeur, Quebec	500,000
Enamel & Heating Products Limited Sackville, New Brunswick	24,000
Interprovincial Steel & Pipe Corporation Ltd. Regina, Saskatchewan	600,000
Lake Ontario Steel Company Limited Whitby, Ontario	300,000
Newfoundland Steel (1968) Company Ltd. St. John's, Newfoundland	40,000
The Steel Company of Canada Ltd. (Stelco) Edmonton, Alberta	128,000
The Steel Company of Canada Ltd. (Stelco) Hamilton, Ontario	5,800,000

Company & Location	Short Tons
Steelmaking (continued)	
Sydney Steel Corporation (Sysco) Sydney, Nova Scotia	1,100,000
Western Canada Steel Limited Calgary, Alberta	57,000
Western Canada Steel Limited Vancouver, B.C.	110,000
Castings	
Abex Industries of Canada Limited Joliette, Quebec	11,000
Abex Industries of Canada Limited Selkirk, Manitoba	7,000
CAE Machinery Limited Vancouver, B.C.	3,750
Canadian Steel Foundries Division (Hawker Siddeley Canada Ltd.) Montreal, Quebec	35,000
Canadian Steel Wheel Limited Montreal, Quebec	160,000
Dominion Engineering Works Limited Montreal, Quebec	15,000
Esco Limited Port Coquitlam, B.C.	9,000
Fahralloy (Wisconsin) Limited Orillia, Ontario	8,030
Griffin Steel Foundries Limited St. Hyacinthe, Quebec	52,500

Company & Location	Short Tons
Castings (Continued)	
Hudson Bay Mining & Smelting Company Ltd. Flin Flon, Manitoba	2,500
The Indiana Steel Products Co. of Canada Ltd. Kitchener, Ontario	8,500
Lynn MacLeod Metallurgy Limited Thetford Mines, Quebec	5,300
Manganese Steel Castings Limited Sherbrooke, Quebec	800
Neelon Steel Limited Sudbury, Ontario	5,000
Unitcast Division (Midland-Ross of Canada Ltd.) Sherbrooke, Quebec	3,000
Victoria Machinery Depot Company Limited Victoria, B.C.	600
Welmet Industries Limited Welland, Ontario	2,500
Specialty Steel; Forgings; Pig Iron	
Atlas Steels Company Welland, Ontario	200,000
Atlas Steels Company Tracy, Quebec	70,000
The Algoma Steel Corporation, Limited Port Colborne, Ontario	240,000
Crucible Steel Division (Colt Industries (Canada) Ltd.) Sorel, Quebec	40,000
Québec Iron & Titanium Corporation Sorel, Quebec	880,000
	16,720,580

TRENDS IN STEEL MAKING TECHNOLOGY



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Reference Papers

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THE CANADIAN INDIAN; A BRIEF OUTLINE

(Prepared by the Indian Group, Office of the Public Information Adviser, Department of Indian and Northern Affairs, Ottawa.)

At the time of the first settlements in North America, the Indian population of what is now Canada was, according to the best estimates of anthropologists, about 200,000. Shortly after the arrival of Europeans, the Indian population started to decline until it became a common belief that the Indians were a dying race. The population had decreased by almost half early in this century, but after steady increases since that time, there is a total Indian population of more than 257,000 today.

There are 561 Indian communities, known as "bands". With the exception of certain nomadic groups inhabiting the outlying and northern regions, these bands are located on 2,300 "reserves"(1), varying in size from a few acres to more than 500 square miles, set aside by the Canadian Government for the use and benefit of Indians. About 25 per cent of the total Indian population have chosen to live off reserves as members of the general community. Successful farmers, ranchers, lumbermen, doctors, dentists, lawyers, teachers, nurses, clergymen, soldiers, industrial workers, stenographers, mechanics, salesmen and tradesmen are numbered in the Indian work force -- both on and off reserves.

Although the origin of the Indians remains uncertain, anthropologists believe that they came to America in successive migrations in pre-historic times from Northern Asia, probably by way of Bering Sea.

The Indians are not a single people. They are divided into a number of basic linguistic groups that are, in turn, subdivided into language groups with many local dialects. There are ten linguistic groups, of which four are found east of the Rocky Mountains -- Algonkian, Athapaskan, Iroquoian and Siouan, and six in British Columbia -- Kootenayan, Salishan, Wakashan, Tsimshian, Haida and Tlinkit. Some Athapaskan-speaking Indian bands also live in the interior of British Columbia.

The Indians of Algonkian origin are the most numerous, covering an area from the Atlantic Ocean to the Rockies; they include such well-known tribes as the Micmacs of Prince Edward Island, Nova Scotia and New Brunswick, the Montagnais of Quebec, and the Ojibway, Cree and Blackfoot of Ontario and the Prairie Provinces.

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(1) The Canadian term "reserve" is nearly the exact equivalent of the United States term "reservation".

Iroquoian peoples, including the Hurons, are found in Ontario and Quebec; Athapaskans inhabit the Yukon and Northwest Territories as well as parts of the interior of British Columbia, while tribes of Sioux inhabit parts of Manitoba, Saskatchewan and Alberta.

The Indian population of Canada is widely scattered, with differing racial and cultural backgrounds, and in varying stages of economic and social development, from the primitive nomadic hunter to the highly-skilled industrial worker or member of the learned professions. Like every other community in Canada, the Indian band or group is subject to the economic, social and geographical influences of the region in which it lives. For general purposes the Indian population may be grouped according to the natural economic zones of the country:

Atlantic Seaboard -- On the Atlantic seaboard, the various tribes lived originally by hunting and had no agriculture. Today, however, they are mainly engaged in forestry, agriculture, fishing and native handicrafts, and live much the same life as other Canadians making their homes in the Maritime Provinces.

St. Lawrence Basin, South of the Laurentian Plateau -- At the time of European settlement, the St. Lawrence and Great Lakes regions that became the nuclei of the present Provinces of Ontario and Quebec were inhabited, as now, by two main groups of Indians: Iroquoians, including Hurons, and the Algonkians, including Ojibways, Algonkins, and Abenakis. The Iroquoians were agriculturalists, being the only aboriginal race in Canada which had developed agriculture to any great extent before the coming of the European, while the Algonkians depended mainly on hunting for their livelihood. Today, those in the settled areas are engaged mainly in farming and industrial and professional pursuits, while those in the more remote areas rely mostly on forestry, fishing, hunting, and trapping for a living.

The Prairies -- In the Prairie Provinces the Indians, who depended upon the buffalo for practically all their needs, had to adapt themselves to new conditions following its near extinction. An intensive policy of agricultural assistance has been necessary. Many Indians are now successful ranchers and grain-growers, a remarkable transition in a few generations in view of the fact that no previous agricultural experience was available to guide them.

Pacific Region -- The Indians inhabiting the coastal areas of this region were traditionally sailors and fishermen and today they are active in the commercial fishing industry, as well as in logging and other industries peculiar to the region. In the interior, fruit-growing and ranching are important, while many Indians earn their livelihood in lumbering. In the northern areas, trapping is the principal occupation.

Precambrian Shield -- Originally, the Indians in this vast area were entirely dependent upon hunting and fishing for their food, alternating between periods of plenty in good game years and periods of privation and starvation when game was scarce. On the whole, hunting and trapping are still important for their livelihood, but this region has witnessed a remarkable change in recent years with the coming of modern means of transportation and communication. The pulpwood industry in the more accessible regions provides employment for many dians, while mining and other projects are also changing employment patterns.

Indian Affairs in New France

The lure of furs and wealth brought French settlers and fur traders to Canada in 1604, more than 60 years after Jacques Cartier had travelled down the St. Lawrence befriending the Indian people. To ensure an abundance of these furs, the French soon established good relations with Algonkin tribes in the east and Huron tribes in the west while setting up trading-posts and mission stations. This firm alliance was to last until the fall of French power in Canada.

The Algonkins and the Hurons were the traditional foes of the Iroquois. Keen rivalry arose between the two tribal groups for control of the fur trade. The Hurons wanted the sole rights to furs from the interior for trading with the French, while the Iroquois wanted them to trade to their English allies.

When New England colonists and traders clashed with their French counterparts, the Indians were drawn into the struggle on both sides. The Indians were sought as allies by both English and French and soon they became an integral part of both fighting forces. From the Indian point of view, they were not only fighting for trade rights but also settling old differences with an enemy tribe.

The falling of Montreal under English control in 1760 found France's Indian allies one by one reluctantly accepting English rule by agreement and by treaty.

Administration under the British

As early as 1670, during the reign of Charles II, instructions were given to the governors of the British colonies that Indians who desired to place themselves under British protection should be well received and protected. Later it was found necessary to establish an office devoted solely to the administration of Indian affairs, and in 1755 Sir William Johnson was appointed Indian Superintendent, with headquarters in the Mohawk Valley, in what is now the State of New York. The establishment of that office was the genesis of future Indian administrative organization in North America. Following the American Revolution, the Indian office was removed to Canada. From

that time on, a continuing administrative organization has been maintained for the protection and advancement of Indian interests.

Until 1860, the Imperial Government was responsible for the management and expense of Indian affairs in Ontario and Quebec, but in that year it was decided that the Province of Canada should assume the charge. Accordingly, the management of Indian affairs was brought under the control of the Crown Lands Department on July 1, 1860, with the Commissioner of Crown Lands being appointed Chief Superintendent of Indian Affairs. In other parts of the country, existing Indian affairs administration was under the management of the various provincial or colonial jurisdictions.

By a special provision in the British North America Act of 1867, the administration of Indian affairs came under the jurisdiction of the Government of Canada. Indian affairs were made the responsibility of the Department of the Secretary of State at the time of Confederation and, in 1873, they became the responsibility of a branch of the Department of the Interior. In 1880, a separate Department of Indian Affairs was established, which continued until 1936, when Indian Affairs were again assigned to a branch, this time of the Department of Mines and Resources. From January 1950, Indian Affairs was a branch of the Department of Citizenships and Immigration; in January 1966, it became a part of the Department of Indian Affairs and Northern Development.

A primary function of the Department of Indian and Northern Affairs is to assist the Indian people to participate fully in the social and economic life of the country. To this end, the department has brought into effect a broad range of programs in the fields of education, economic development, social welfare and community development -- including housing, road construction and maintenance, sanitation facilities, child and adult education, band business enterprises on reserves, etc.

Among the more important functions of general Indian administration are: the administration of Indian reserves and surrendered land; the administration of band funds; descent of property, and Indian treaty obligations.

Administration is carried on through a headquarters staff at Ottawa and regional and district offices in each province or territory. Medical services are provided, as required, by the Department of National Health and Welfare.

Indian treaties

Early in the settlement of North America, the British sovereign recognized, as a matter of policy, an Indian interest in the lands they occupied -- which could be extinguished by agreement with the

Indians and then only to the Crown. This gave rise to the practice of making agreements or treaties, as they were afterwards called, with various Indian tribes. The policy began in British colonial times in what is now the United States and was afterwards introduced into Canada.

As settlement began in southern Ontario, treaties were made with the Indians for the surrender of their interests in the land. In return, the Crown undertook to set aside reserves and provide additional benefits such as cash payments, annuities, educational facilities and other considerations.

After Confederation in 1867, in regard to Indians not already dealt with, Canada followed the policy of making treaties, beginning in Manitoba and northwestern Ontario, continuing throughout the greater part of the West and Northwest, and then back again to include all of northern Ontario. In British Columbia, the provincial government did not recognize that Indians had any title and considered the land question settled with the setting aside of reserves. However, in 1926 a special committee of the Senate and House of Commons in Ottawa recommended that, in lieu of treaty moneys payable in other areas, a sum of $100,000 be expended annually for the benefit of B.C. Indians who had not been brought under treaty. (Because of their peculiar geographic position and close relation with Alberta Indians, the Indians of northeastern British Columbia had been brought under Treaty No. 8 between 1899 and 1910, notwithstanding the position taken by the province with respect to Indian title.)

About half the Indian population of Canada is under treaty. This does not include the Indians of Quebec and the Maritimes, whose territorial claims had passed to the French. The British did, however, guarantee to these Indians all lands that French authorities had set aside for their use. Also not included in the treaties are the Iroquois of Brantford and Tyendinaga and certain other groups that immigrated to Canada from what is now the United States and were given reserve lands in Canada. The needs of Indians not under treaty, however, receive no less attention from the Federal Government on that account.

Province of Canada Treaties

Robinson Superior Treaty	September 7, 1850 -- between the Province of Canada and the Ojibway Indians, northern shore and hinterland of Lake Superior.
and Robinson Huron Treaty	September 9, 1850 -- between the Province of Canada and the Ojibway Indians, northern shore and hinterland of Lake Huron.

	Indian promises	Indians promise not to sell, lease or dispose of minerals or other reserve products without consent of the Superintendent General of Indian Affairs and not to hinder exploration or prospecting.
	Government obligations	Reserves as set forth in treaty schedules (no *per capita* or family land grant); right to hunt and fish except on lands occupied by individuals or companies with consent of Province (no restriction as to regulations). Total cash payment at Treaties £4,160; perpetual annuity of £1,100 (now $4.00 *per capita*).(2)
	Manitoulin Island Treaty	October 6, 1862 -- between the Province of Canada and the Ottawa, Ojibway and other Indians. Area ceded -- all portions of the Great Manitoulin Island except those to be set apart as reserve lands for the use of Indians.
	Government obligations	100 acres a family, or 50 acres for each single person over the age of 21, or single orphan under the age of 21; total cash payment at treaty $700.00; annual interest payment from proceeds of land sales; same fishing rights as those enjoyed by white settlers.
Post-Confederation Treaties	**Treaty No. 1**	August 3, 1871 -- Chippewa (Ojibway), Swampy Cree and others, southern Manitoba centring on Portage la Prairie and Winnipeg districts.

(2) £ -- pound sterling

Indian promises	To observe Treaty; maintain peace; not to molest persons or property (same promises in subsequent Treaties, with additional undertaking to assist in bringing Indian offenders to justice).
Government obligations	Reserves, 160 acres a family of five plus additional 25 sq. mi.; control of liquor traffic; maintenance of school on each reserve; commissioners to take census.
Annuity	Originally $3.00, raised to $5.00 in 1875; chiefs $25.00; triennial suit of clothes to each chief and headman.
Treaty No. 2	August 21, 1871 -- Chippewa and others. Central Manitoba, southeastern Saskatchewan and southwestern Manitoba.
Government obligations	Reserves, 160 acres a family of five; school on each reserve; control of liquor traffic; commissioners to take census.
Annuity	$3.00 a head raised to $5.00 in 1875; chiefs $25.00; triennial suit of clothes to each chief and headman (added in 1875).
Treaty No. 3	October 3, 1873 -- Saulteaux tribe of the Ojibway and other Indians. Extreme southwest of Ontario lying west of the Great Lakes and small portion of southeastern Manitoba. Area ceded, 55,000 square miles.
Government obligations	Reserves up to one square mile for family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to

	appropriate reserve lands for federal public purposes, subject to improvements; schools; control of liquor traffic; hunting and fishing in ceded area subject to Dominion regulations.
Treaty presents	$12.00 a head; various items for agricultural equipment, supplies, etc.; flags and medals.
Annuities	By census, $5.00 to each registered Indian; chiefs $25.00, headmen $15.00; $1,500.00 annually for ammunition; triennial suit of clothes to each chief and headman.
Treaty No. 4	September 15, 1874 -- Cree, Saulteaux and others. Mainly southern Saskatchewan. Area ceded, 74,600 square miles.
Government obligations	Reserves one square mile for family of five -- subject to Government's rights to deal with settler on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; schools; right to hunt, trap and fish in tract surrendered subject to Government regulations; control of liquor traffic.
Treaty presents	Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous agricultural equipment, supplies, etc.; flags and medals.

Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; $750.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen.
Treaty No. 5	September 24, 1875 -- Saulteaux and Swampy Cree tribes and others, northern Manitoba and part of Ontario, north of Treaty No. 3. Area ceded 100,000 square miles.
Government obligations	Reserves 160 acres a family of five (100 acres a family of five at Fisher River -- subject to Government's right to deal with settlers on reserve lands); right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements; right to navigation of all lakes and rivers and free access to the shores thereof; schools; right to hunt and fish ceded area subject to Government regulations; control of liquor traffic.
Treaty presents	Miscellaneous agricultural equipment, supplies, etc.; flags, medals.
Annuities	$5.00 a head, chiefs $25.00, headmen $15.00; $500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen.

Treaty No. 6	August 23, 1876, and September 9, 1876 -- Plain and Wood Cree tribes and others. Central Alberta and central Saskatchewan. Area ceded, 121,000 square miles.
Government obligations	Reserves one square mile to each family of five; subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements; schools, control of liquor traffic; right to hunt and fish in tract surrendered subject to Government regulations.
Treaty presents	$12.00 a head; miscellaneous agricultural equipment, supplies, etc.; flags and medals.
Annuities	$5.00 a head, chief $25.00, headmen $15.00; $1,500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen. Assistance in case of pestilence and famine; medicine chest for use of Indians.
Treaty No. 7	September 22, 1877 -- Blackfoot, Blood, Peigan, Sarcee, Stony and others -- southern Alberta. Area ceded 42,900 square miles.
Government obligations	Reserves one square mile for each family of five; right to hunt subject to Government regulations; school teachers.

Treaty presents	Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous items and equipment; flags and medals.
Annuities	Chiefs $25.00, headmen $15.00, Indians $5.00; $2,000.00 annually for ammunition; triennial suit of clothes for chiefs and councillors.
Treaty No. 8	June 21, 1899 -- Cree, Beaver, Chipewyan and others. Northern Alberta, the Northwest Territories south of Great Slave Lake, and northeastern British Columbia. Area ceded 324,900 square miles.
Government obligations	Reserves one square mile for each family of five or 160 acres in severalty, subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indian and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish subject to Government regulations; school teachers.
Treaty presents	Indians $12.00, chiefs $32.00, headmen $22.00; miscellaneous agricultural equipment, supplies, etc.; ammunition and twine $1.00 a head for families preferring hunting and trapping to agriculture; medals and flags.

Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes for chiefs and headmen.
Treaty No. 9	July 12, 1905 -- among the Dominion of Canada, the Province of Ontario and Ojibway, Cree and others. That part of Ontario draining into the Hudson Bay. Paid by Ontario. Area ceded, 90,000 square miles.
Government obligations	Reserves up to one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to Government regulations; education.
Treaty presents	$8.00 a head; flags.
Annuities	$4.00 a head.
Treaty No. 10	August 28, 1906 -- Chipewyan, Cree and others -- northern Saskatchewan. Area ceded, 85,800 square miles.
Government obligations	Reserves up to one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands

	with the consent of the Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; Indians who do not wish to live on reserves may have 160 acres a head in severalty off reserves; education; right to hunt, trap and fish.
Treaty presents	Indians $12.00, chiefs $32.00, headmen $22.00, medals and flags.
Annuities	Chiefs $25.00, headmen $15.00, Indians $5.00; distribution of twine and ammunition annually; triennial suit of clothes to chiefs and headmen.
Treaty No. 11	June 27, 1921 -- Slave, Dogrib, Loucheux, Hare and other Indians. Northwest Territories north of Great Slave Lake. Area ceded, 372,000 square miles.
Government obligations	Reserves one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to Government regulations; salaries of teachers.
Treaty presents	Medals and flags and copy of treaty for each chief; fishing, hunting and trapping equipment to

	value of $50.00 for each family of band; miscellaneous equipment.
Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes to chiefs and headmen; annual distribution of twine, ammunition to the value of $3.00 to each Indian.
Treaty between His Majesty the King and the Chippewa Indians of Christian Island, Georgina Island and Rama.	October 31, 1923.
and Treaty between His Majesty the King and the Mississauga Indians of Rice Lake, Mud Lake, Scugog Lake and Alderville.	November 15, 1923. Indians ceded rights to an area of 20,100 square miles in southern and central Ontario between Lake Ontario and Georgian Bay.
Government obligations	$25.00 to each Indian signing treaty; $500,000 paid by Ontario, to be administered by the Department of Indian Affairs.

Legislation There is only one Indian act and one Indian administration in Canada. Before Confederation, in addition to the old Province of Canada, several of the colonies that now form Canada had Indian legislation and some administrative organization for Indian affairs. After Confederation, Parliament from time to time enacted legislation concerning Indians and this was consolidated in the Indian Act of 1876. Although it was changed and simplified by various amendments, this act remained the basic Indian law until 1951, when a new act came into force.

Legal status of Indians Apart from special provisions in the Indian Act, Indians are subject to federal, provincial and municipal laws and, in the same manner as

other Canadian citizens, Indians may sue and be sued and may enter freely into contractual obligations in ordinary business transactions. Their property on a reserve is exempt from taxation, and such property, except on a suit by another Indian, is also exempt from seizure.

Indians may vote at federal elections on the same basis as other citizens. With regard to provincial elections, the Indians are governed by the electoral laws of the various provinces.

Liquor has presented a special problem. From an early period it was thought necessary to control the liquor traffic with Indians and special legislation was passed by authorities prohibiting the sale of intoxicants to, and their use by, the Indian people. These laws were to protect them from exploitation by unscrupulous traders and individuals who might take advantage of them in economic matters, especially during the early fur-trading period.

Total prohibition of the use of any kind of intoxicant by Indians except for medicinal purposes is the significant feature of the liquor provisions of Indian legislation passed by the Parliament of Canada, which was consolidated in the Indian Act of 1876 and continued with minor changes until 1951, when legislation was broadened to allow the Indian people to decide their own course of action on this matter on a provincial and individual reserve basis.

Band management

The original political organization of the Indians varied considerably from tribe to tribe. It was usually very simple, involving only the recognition of a chief and headmen or councillors, either hereditary or chosen for their prowess or ability. As early as 1869, provision was made in the Indian legislation for local government on reserves in accordance with democratic principles. This provision has been broadened from time to time to meet the needs of Indian communities.

The Indians now elect band councils consisting of a chief and councillors who correspond to the local elective officers in rural municipalities. However, Indian bands who wish to adhere to their tribal system of choosing chiefs and councillors may continue to do so and those chosen exercise the same powers as an elected council. The councils are concerned with local conditions affecting members of the band and work closely with the representatives of the Department of Indian and Northern Affairs. They may make by-laws with regard to various matters of a local nature concerning the reserves and also have certain responsibilities with regard to the management of band funds, the surrender or lease of reserve lands, land allotment and band membership. Management of welfare assistance, community planning, economic development, school administration and other local programs

also may be placed in varying degrees within their administrative orbit. A Departmental contribution program has been developed to assist in financing many of these local projects. The right to vote has been extended to Indian women, many of whom are taking a keen interest in band affairs and are playing an effective part in band administration.

Finances

The Indian Trust Fund is made up of capitalized annuities and moneys derived from Indian assets.

Revenue to the Fund began with the settlement of Upper Canada, and the surrender for sale of Indian lands in that province. Today, major items of income to the Fund are derived from leases of Indian reserve lands, timber sales, oil royalties, the leasing of oil and gas exploration rights and the sale of gravel.

Before 1859, moneys were held for investment in commercial securities, municipal debentures and so on. In that year, the Government assumed the investments because investments in securities and debentures involved possible loss to the Fund and security was of prime importance.

It should be noted that the Trust Fund is not owned in common by all Indians in Canada but belongs to various bands. Some bands have well over $1 million, others have only a few dollars, while a considerable number of bands have no moneys at all and therefore no interest in the Trust Fund. This seeming inequality arises from the fact that some bands chose reserves rich in agricultural land, timber or minerals, and have been able to dispose of their surplus assets, depositing the proceeds in their trust accounts. Other bands chose reserves because of their suitability for hunting and fishing and these often lacked other resources from which revenue could be derived.

Expenditures from the moneys of a band held in the Trust Fund are permitted for any purpose considered in the interest of the band or the individual members thereof. Requests for expenditures originate with the councils of the respective bands.

Under the Indian Act, an Indian band may be permitted by Order in Council to control, manage and expend in whole or in part its revenue moneys. To date, 335 bands have been granted this authority. However, whether or not such authority has been granted to their bands, all band councils are encouraged to take the lead in planning for the expenditure of band funds.

When an Indian becomes enfranchised -- that is, when he gives up his Indian status and is no longer entitled to the rights and privileges

reserved under the Indian Act for Indians only -- he is paid a *per capita* share of the trust fund of the band to which he belongs.

Education

In Canada, education is generally under the jurisdiction of the individual provinces, but the provision of education services to Indians is the responsibility of the Federal Government.

The "in-school" education program from pre-school to secondary grades is carried out through the operation of federal schools, or by agreements with provincial schools, in which case the tuition costs are paid by the Federal Government. The schools follow provincial curricula, but are encouraged to provide special instructional materials and programs related to Indian heritage and culture. Student residences, boarding homes and counselling services are provided for students who are prevented from attending schools in their home areas because of isolation or for other reasons.

The Federal Government also provides a comprehensive program of financial assistance and counselling services in the post-school area, including vocational, occupational and post-secondary training in provincial institutions and universities. In addition, adult-education courses are available to provide adult Indians with basic education, educational upgrading and social education courses. An employment and relocation program offers on-the-job and in-service training services; relocation grants; counselling and follow-up services and mobility assistance.

Teachers

In common with other schools throughout Canada, Indian schools are attempting to secure the best-qualified teachers possible. Indian boys and girls are encouraged, through financial assistance, to enter the teaching profession to serve their own people.

Teachers engaged by the Department of Indian and Northern Affairs enjoy a salary schedule that compares favourably with that in effect in the provincial schools across Canada. When engaged in the Indian day-schools in isolated areas, most teachers receive furnished and heated quarters for which a moderate pay deduction is made.

Social services program

There is no specific federal legislation whereby the Federal Government is authorized to establish and/or maintain a social-services program on behalf of Indian residents of Canada.

The authority for providing that program is an allotment included in the funds appropriated each year by Parliament for the administration of Indian affairs. Appropriation for welfare purposes provides for financial assistance and services to: indigent, registered Indians living on reserves; specific categories of non-Indians living on

reserves; indigent, registered Indians living off reserves who are not considered to be eligible for assistance from any source in the non-Indian communities in which they may be living at the time of need.

The social-services program administered and financed by the Department of Indian and Northern Affairs includes social assistance, care and maintenance of children, maintenance of children, maintenance and rehabilitative services for physically and/or socially handicapped adults. It provides basic necessities of food, clothing, shelter, fuel and other household essentials for dependent Indians living on reserves under the same conditions as apply to other residents of the provinces and Yukon Territory. In the Northwest Territories, welfare benefits and services to Indian residents are the administrative responsibility of the territorial government.

Under Section 88 of the Indian Act, Indian residents are subject to the same provincial child-welfare legislation as non-Indian residents of a province. The welfare of neglected, dependent and delinquent Indian children is ensured through the enforcement of provincial legislation and provision of related services by provincial social welfare departments and accredited child-care agencies in each province. The Federal Government has entered into agreements with the governments of the Yukon, Manitoba and Nova Scotia, by which Indian children may receive the same welfare services as non-Indian children, in accordance with provincial child welfare legislation.

The Federal Government provides maintenance and care in homes for the aged and other institutions for physically and socially handicapped adults who need care which may not require active medical treatment.

In addition to the child-welfare agreements, the Federal Government entered into an agreement with Ontario in 1965 under which all provincial welfare programs are made available to Indians living in the province.

Under service contracts, private social agencies in Quebec are providing professional social services to Indian communities within their boundaries.

Indians are eligible for family and youth allowances, Old Age Security and the Guaranteed Income Supplement, which are administered and financed by the Federal Government. Certain provincial allowances in British Columbia, Ontario and Nova Scotia are also available to Indian residents.

Community Development

The Department defines community-development services as services intended to encourage and help people to participate in improving the social, economic and cultural conditions of their community life. These services are provided by individual community-development workers, who meet with community residents (initially, on an individual basis and later in small groups) to help them determine what local problem they need to solve, and can solve. Next, they must formulate and carry through an appropriate course of action. The object of the community-development process is, therefore, not so much to solve the specific problem chosen by the community as to use that problem as an opportunity for residents to learn, through experience, the skills involved in working together.

The development of leadership is encouraged through a variety of training programs sponsored jointly by the Federal Government, provincial governments and university extension departments in several provinces. The increasing demand for responsible leadership by Indian councils, voluntary organizations and other groups in Indian communities has resulted in a marked expansion in training courses for potential leaders and in workshops and short courses related to local needs.

The Department collaborates with public and private agencies in all aspects of community life. The efforts of volunteer groups are also encouraged, as well as Indian participation and initiative at the community level.

In most provinces, community-development services are now provided by Indian associations, under agreements with the Federal Government. Exceptions are: *Ontario*, where the provincial government supplies services under a similar agreement; *Quebec*, where community development is carried out by departmental staff; *the Northwest Territories*, where the territorial government embodies community-development techniques in a number of associated programs; *Alberta*, where consultations with bands are currently in process to determine the most suitable way to provide services.

The estimated total costs for agreements with Indian organizations in 1971-72 were $1.8 million, made up as follows:

Nova Scotia	$150,000
New Brunswick	165,000
Manitoba	500,000
Saskatchewan	500,000
Alberta	325,000
British Columbia	136,000
Yukon Territory	50,000

Economic development

A great many Indians still depend on the traditional pursuits of trapping, hunting and fishing for a livelihood. New techniques of development and management have increased the production of fur-bearing animals in recent years, particularly the introduction of a long-range program in co-operation with the various provinces. More recently, programs have been introduced to foster greater participation by Indians in the commercial fishing industry, and to encourage domestic fisheries on a co-operative basis as a means of providing subsistence food. Earnings from the wildlife and fisheries resources are augmented seasonally by such pursuits as guiding and the gathering of wild rice and other wild crops.

The traditional arts and crafts are still producing part-time employment for Indians in many areas. Handicraft items include moccasins, gloves, jackets, and *mukluks*(3) in northern and non-agricultural hunting areas, potato baskets in the Maritime Provinces and totem carvings, carved masks, fire baskets and Cowichan sweaters(4) on the West Coast. These provide an important supplementary income for the Indian families producing them. In pilot projects, wood-carvings and new, non-traditional products bearing Indian designs are being developed.

Recognizing the need to establish long-term economic objectives for, and in consultation with, the Indian people, the Department, through its Indian and Eskimo Economic Development Branch, helps individuals and bands to create business and employment, including mineral resources on Indian reserves.

Many of these programs are being conducted in co-operation with other federal departments, provincial governments and private organizations.

Assistance is in the form of loans, grants, loan guarantees, technical and management advice, and specialized training. The loans, grants and guarantees are provided from the Indian Economic Development Fund, which was capitalized at $19,050,000 for the fiscal year 1971-72.

In addition to the Fund, the Branch had appropriations of $14,845,000 for the fiscal year 1971-72 to encourage the development of economic activity through the provision of basic infrastructure and professional and technical services.

The Branch is also responsible for the administration of Indian reserves and surrendered lands, as well as the administration of certain categories of Indian estates.

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(3) Warm, knee-high boots of seal-skin worn by Indians and Eskimos of the Northwest Territories.

(4) Heavy sweater of grey, unbleached wool, originally having a black-and-white design but now often multi-coloured, made by the Cowichan Indians of southern Vancouver Island.

General

The medical care of Indians and Eskimos is within the jurisdiction of the Medical Services, Department of National Health and Welfare.

The National Museum of Man is the federal authority on traditional Indian culture and prehistory. Information in these matters may be obtained from the Education Section of the Museum.

General information on Canada's native peoples is available from Information Services, Department of Indian and Northern Affairs, Ottawa. Films and film strips may be obtained from the National Film Board, Ottawa.

Future patterns for Indian development

A welcome trend during the past few years has been an ever-increasing awareness on the part of the Indian people that their future lies largely within their own control. As a concrete illustration of this fact, the conduct of Indian affairs is assuming more and more importance in the eyes of individual Indians, groups or associations.

In a comparatively short time, strong, viable Indian associations have been formed in every province and territory of Canada. They are putting forward their own ideas on what should be done to help their people, and the Department is listening and co-operating. There is also an increasing recognition on the part of the Department of Indian and Northern Affairs that the Indian people should have as much responsibility as they are willing to assume. One example of this fact is the Contributions to Bands Program by which Indians bands, funded in part by the Federal Government, are able to control such basic necessities on their reserves as welfare, roads, maintenance, housing, etc.

This trend can be expected to accelerate in the future.

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THE CANADIAN INDIAN; A BRIEF OUTLINE

(Prepared by the Indian Group, Office of the Public Information Adviser, Department of Indian and Northern Affairs, Ottawa.)

At the time of the first settlements in North America, the Indian population of what is now Canada was, according to the best estimates of anthropologists, about 200,000. Shortly after the arrival of Europeans, the Indian population started to decline until it became a common belief that the Indians were a dying race. The population had decreased by almost half early in this century, but after steady increases since that time, there is a total Indian population of more than 257,000 today.

There are 561 Indian communities, known as "bands". With the exception of certain nomadic groups inhabiting the outlying and northern regions, these bands are located on 2,300 "reserves"(1), varying in size from a few acres to more than 500 square miles, set aside by the Canadian Government for the use and benefit of Indians. About 25 per cent of the total Indian population have chosen to live off reserves as members of the general community. Successful farmers, ranchers, lumbermen, doctors, dentists, lawyers, teachers, nurses, clergymen, soldiers, industrial workers, stenographers, mechanics, salesmen and tradesmen are numbered in the Indian work force -- both on and off reserves.

Although the origin of the Indians remains uncertain, anthropologists believe that they came to America in successive migrations in pre-historic times from Northern Asia, probably by way of Bering Sea.

The Indians are not a single people. They are divided into a number of basic linguistic groups that are, in turn, subdivided into language groups with many local dialects. There are ten linguistic groups, of which four are found east of the Rocky Mountains -- Algonkian, Athapaskan, Iroquoian and Siouan, and six in British Columbia -- Kootenayan, Salishan, Wakashan, Tsimshian, Haida and Tlinkit. Some Athapaskan-speaking Indian bands also live in the interior of British Columbia.

The Indians of Algonkian origin are the most numerous, covering an area from the Atlantic Ocean to the Rockies; they include such well-known tribes as the Micmacs of Prince Edward Island, Nova Scotia and New Brunswick, the Montagnais of Quebec, and the Ojibway, Cree and Blackfoot of Ontario and the Prairie Provinces.

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(1) The Canadian term "reserve" is nearly the exact equivalent of the United States term "reservation".

Iroquoian peoples, including the Hurons, are found in Ontario and Quebec; Athapaskans inhabit the Yukon and Northwest Territories as well as parts of the interior of British Columbia, while tribes of Sioux inhabit parts of Manitoba, Saskatchewan and Alberta.

The Indian population of Canada is widely scattered, with differing racial and cultural backgrounds, and in varying stages of economic and social development, from the primitive nomadic hunter to the highly-skilled industrial worker or member of the learned professions. Like every other community in Canada, the Indian band or group is subject to the economic, social and geographical influences of the region in which it lives. For general purposes the Indian population may be grouped according to the natural economic zones of the country:

Atlantic Seaboard -- On the Atlantic seaboard, the various tribes lived originally by hunting and had no agriculture. Today, however, they are mainly engaged in forestry, agriculture, fishing and native handicrafts, and live much the same life as other Canadians making their homes in the Maritime Provinces.

St. Lawrence Basin, South of the Laurentian Plateau -- At the time of European settlement, the St. Lawrence and Great Lakes regions that became the nuclei of the present Provinces of Ontario and Quebec were inhabited, as now, by two main groups of Indians: Iroquoians, including Hurons, and the Algonkians, including Ojibways, Algonkins, and Abenakis. The Iroquoians were agriculturalists, being the only aboriginal race in Canada which had developed agriculture to any great extent before the coming of the European, while the Algonkians depended mainly on hunting for their livelihood. Today, those in the settled areas are engaged mainly in farming and industrial and professional pursuits, while those in the more remote areas rely mostly on forestry, fishing, hunting, and trapping for a living.

The Prairies -- In the Prairie Provinces the Indians, who depended upon the buffalo for practically all their needs, had to adapt themselves to new conditions following its near extinction. An intensive policy of agricultural assistance has been necessary. Many Indians are now successful ranchers and grain-growers, a remarkable transition in a few generations in view of the fact that no previous agricultural experience was available to guide them.

Pacific Region -- The Indians inhabiting the coastal areas of this region were traditionally sailors and fishermen and today they are active in the commercial fishing industry, as well as in logging and other industries peculiar to the region. In the interior, fruit-growing and ranching are important, while many Indians earn their livelihood in lumbering. In the northern areas, trapping is the principal occupation.

Precambrian Shield -- Originally, the Indians in this vast area were entirely dependent upon hunting and fishing for their food, alternating between periods of plenty in good game years and periods of privation and starvation when game was scarce. On the whole, hunting and trapping are still important for their livelihood, but this region has witnessed a remarkable change in recent years with the coming of modern means of transportation and communication. The pulpwood industry in the more accessible regions provides employment for many dians, while mining and other projects are also changing employment patterns.

Indian Affairs in New France

The lure of furs and wealth brought French settlers and fur traders to Canada in 1604, more than 60 years after Jacques Cartier had travelled down the St. Lawrence befriending the Indian people. To ensure an abundance of these furs, the French soon established good relations with Algonkin tribes in the east and Huron tribes in the west while setting up trading-posts and mission stations. This firm alliance was to last until the fall of French power in Canada.

The Algonkins and the Hurons were the traditional foes of the Iroquois. Keen rivalry arose between the two tribal groups for control of the fur trade. The Hurons wanted the sole rights to furs from the interior for trading with the French, while the Iroquois wanted them to trade to their English allies.

When New England colonists and traders clashed with their French counterparts, the Indians were drawn into the struggle on both sides. The Indians were sought as allies by both English and French and soon they became an integral part of both fighting forces. From the Indian point of view, they were not only fighting for trade rights but also settling old differences with an enemy tribe.

The falling of Montreal under English control in 1760 found France's Indian allies one by one reluctantly accepting English rule by agreement and by treaty.

Administration under the British

As early as 1670, during the reign of Charles II, instructions were given to the governors of the British colonies that Indians who desired to place themselves under British protection should be well received and protected. Later it was found necessary to establish an office devoted solely to the administration of Indian affairs, and in 1755 Sir William Johnson was appointed Indian Superintendent, with headquarters in the Mohawk Valley, in what is now the State of New York. The establishment of that office was the genesis of future Indian administrative organization in North America. Following the American Revolution, the Indian office was removed to Canada. From

that time on, a continuing administrative organization has been maintained for the protection and advancement of Indian interests.

Until 1860, the Imperial Government was responsible for the management and expense of Indian affairs in Ontario and Quebec, but in that year it was decided that the Province of Canada should assume the charge. Accordingly, the management of Indian affairs was brought under the control of the Crown Lands Department on July 1, 1860, with the Commissioner of Crown Lands being appointed Chief Superintendent of Indian Affairs. In other parts of the country, existing Indian affairs administration was under the management of the various provincial or colonial jurisdictions.

By a special provision in the British North America Act of 1867, the administration of Indian affairs came under the jurisdiction of the Government of Canada. Indian affairs were made the responsibility of the Department of the Secretary of State at the time of Confederation and, in 1873, they became the responsibility of a branch of the Department of the Interior. In 1880, a separate Department of Indian Affairs was established, which continued until 1936, when Indian Affairs were again assigned to a branch, this time of the Department of Mines and Resources. From January 1950, Indian Affairs was a branch of the Department of Citizenships and Immigration; in January 1966, it became a part of the Department of Indian Affairs and Northern Development.

A primary function of the Department of Indian and Northern Affairs is to assist the Indian people to participate fully in the social and economic life of the country. To this end, the department has brought into effect a broad range of programs in the fields of education, economic development, social welfare and community development -- including housing, road construction and maintenance, sanitation facilities, child and adult education, band business enterprises on reserves, etc.

Among the more important functions of general Indian administration are: the administration of Indian reserves and surrendered land; the administration of band funds; descent of property, and Indian treaty obligations.

Administration is carried on through a headquarters staff at Ottawa and regional and district offices in each province or territory. Medical services are provided, as required, by the Department of National Health and Welfare.

Indian treaties

Early in the settlement of North America, the British sovereign recognized, as a matter of policy, an Indian interest in the lands they occupied -- which could be extinguished by agreement with the

Indians and then only to the Crown. This gave rise to the practice of making agreements or treaties, as they were afterwards called, with various Indian tribes. The policy began in British colonial times in what is now the United States and was afterwards introduced into Canada.

As settlement began in southern Ontario, treaties were made with the Indians for the surrender of their interests in the land. In return, the Crown undertook to set aside reserves and provide additional benefits such as cash payments, annuities, educational facilities and other considerations.

After Confederation in 1867, in regard to Indians not already dealt with, Canada followed the policy of making treaties, beginning in Manitoba and northwestern Ontario, continuing throughout the greater part of the West and Northwest, and then back again to include all of northern Ontario. In British Columbia, the provincial government did not recognize that Indians had any title and considered the land question settled with the setting aside of reserves. However, in 1926 a special committee of the Senate and House of Commons in Ottawa recommended that, in lieu of treaty moneys payable in other areas, a sum of $100,000 be expended annually for the benefit of B.C. Indians who had not been brought under treaty. (Because of their peculiar geographic position and close relation with Alberta Indians, the Indians of northeastern British Columbia had been brought under Treaty No. 8 between 1899 and 1910, notwithstanding the position taken by the province with respect to Indian title.)

About half the Indian population of Canada is under treaty. This does not include the Indians of Quebec and the Maritimes, whose territorial claims had passed to the French. The British did, however, guarantee to these Indians all lands that French authorities had set aside for their use. Also not included in the treaties are the Iroquois of Brantford and Tyendinaga and certain other groups that immigrated to Canada from what is now the United States and were given reserve lands in Canada. The needs of Indians not under treaty, however, receive no less attention from the Federal Government on that account.

Province of Canada Treaties

Robinson Superior Treaty	September 7, 1850 -- between the Province of Canada and the Ojibway Indians, northern shore and hinterland of Lake Superior.
and **Robinson Huron Treaty**	September 9, 1850 -- between the Province of Canada and the Ojibway Indians, northern shore and hinterland of Lake Huron.

	Indian promises	Indians promise not to sell, lease or dispose of minerals or other reserve products without consent of the Superintendent General of Indian Affairs and not to hinder exploration or prospecting.
	Government obligations	Reserves as set forth in treaty schedules (no *per capita* or family land grant); right to hunt and fish except on lands occupied by individuals or companies with consent of Province (no restriction as to regulations). Total cash payment at Treaties £4,160; perpetual annuity of £1,100 (now $4.00 *per capita*).(2)
	Manitoulin Island Treaty	October 6, 1862 -- between the Province of Canada and the Ottawa, Ojibway and other Indians. Area ceded -- all portions of the Great Manitoulin Island except those to be set apart as reserve lands for the use of Indians.
	Government obligations	100 acres a family, or 50 acres for each single person over the age of 21, or single orphan under the age of 21; total cash payment at treaty $700.00; annual interest payment from proceeds of land sales; same fishing rights as those enjoyed by white settlers.
Post-Confederation Treaties	**Treaty No. 1**	August 3, 1871 -- Chippewa (Ojibway), Swampy Cree and others, southern Manitoba centring on Portage la Prairie and Winnipeg districts.

(2) £ -- pound sterling

Indian promises	To observe Treaty; maintain peace; not to molest persons or property (same promises in subsequent Treaties, with additional undertaking to assist in bringing Indian offenders to justice).
Government obligations	Reserves, 160 acres a family of five plus additional 25 sq. mi.; control of liquor traffic; maintenance of school on each reserve; commissioners to take census.
Annuity	Originally $3.00, raised to $5.00 in 1875; chiefs $25.00; triennial suit of clothes to each chief and headman.
Treaty No. 2	August 21, 1871 -- Chippewa and others. Central Manitoba, southeastern Saskatchewan and southwestern Manitoba.
Government obligations	Reserves, 160 acres a family of five; school on each reserve; control of liquor traffic; commissioners to take census.
Annuity	$3.00 a head raised to $5.00 in 1875; chiefs $25.00; triennial suit of clothes to each chief and headman (added in 1875).
Treaty No. 3	October 3, 1873 -- Saulteaux tribe of the Ojibway and other Indians. Extreme southwest of Ontario lying west of the Great Lakes and small portion of southeastern Manitoba. Area ceded, 55,000 square miles.
Government obligations	Reserves up to one square mile for family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to

	appropriate reserve lands for federal public purposes, subject to improvements; schools; control of liquor traffic; hunting and fishing in ceded area subject to Dominion regulations.
Treaty presents	$12.00 a head; various items for agricultural equipment, supplies, etc.; flags and medals.
Annuities	By census, $5.00 to each registered Indian; chiefs $25.00, headmen $15.00; $1,500.00 annually for ammunition; triennial suit of clothes to each chief and headman.
Treaty No. 4	September 15, 1874 -- Cree, Saulteaux and others. Mainly southern Saskatchewan. Area ceded, 74,600 square miles.
Government obligations	Reserves one square mile for family of five -- subject to Government's rights to deal with settler on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; schools; right to hunt, trap and fish in tract surrendered subject to Government regulations; control of liquor traffic.
Treaty presents	Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous agricultural equipment, supplies, etc.; flags and medals.

Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; $750.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen.
Treaty No. 5	September 24, 1875 -- Saulteaux and Swampy Cree tribes and others, northern Manitoba and part of Ontario, north of Treaty No. 3. Area ceded 100,000 square miles.
Government obligations	Reserves 160 acres a family of five (100 acres a family of five at Fisher River -- subject to Government's right to deal with settlers on reserve lands); right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements; right to navigation of all lakes and rivers and free access to the shores thereof; schools; right to hunt and fish ceded area subject to Government regulations; control of liquor traffic.
Treaty presents	Miscellaneous agricultural equipment, supplies, etc.; flags, medals.
Annuities	$5.00 a head, chiefs $25.00, headmen $15.00; $500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen.

Treaty No. 6	August 23, 1876, and September 9, 1876 -- Plain and Wood Cree tribes and others. Central Alberta and central Saskatchewan. Area ceded, 121,000 square miles.
Government obligations	Reserves one square mile to each family of five; subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements; schools, control of liquor traffic; right to hunt and fish in tract surrendered subject to Government regulations.
Treaty presents	$12.00 a head; miscellaneous agricultural equipment, supplies, etc.; flags and medals.
Annuities	$5.00 a head, chief $25.00, headmen $15.00; $1,500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen. Assistance in case of pestilence and famine; medicine chest for use of Indians.
Treaty No. 7	September 22, 1877 -- Blackfoot, Blood, Peigan, Sarcee, Stony and others -- southern Alberta. Area ceded 42,900 square miles.
Government obligations	Reserves one square mile for each family of five; right to hunt subject to Government regulations; school teachers.

Treaty presents	Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous items and equipment; flags and medals.
Annuities	Chiefs $25.00, headmen $15.00, Indians $5.00; $2,000.00 annually for ammunition; triennial suit of clothes for chiefs and councillors.
Treaty No. 8	June 21, 1899 -- Cree, Beaver, Chipewyan and others. Northern Alberta, the Northwest Territories south of Great Slave Lake, and northeastern British Columbia. Area ceded 324,900 square miles.
Government obligations	Reserves one square mile for each family of five or 160 acres in severalty, subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indian and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish subject to Government regulations; school teachers.
Treaty presents	Indians $12.00, chiefs $32.00, headmen $22.00; miscellaneous agricultural equipment, supplies, etc.; ammunition and twine $1.00 a head for families preferring hunting and trapping to agriculture; medals and flags.

Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes for chiefs and headmen.
Treaty No. 9	July 12, 1905 -- among the Dominion of Canada, the Province of Ontario and Ojibway, Cree and others. That part of Ontario draining into the Hudson Bay. Paid by Ontario. Area ceded, 90,000 square miles.
Government obligations	Reserves up to one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to Government regulations; education.
Treaty presents	$8.00 a head; flags.
Annuities	$4.00 a head.
Treaty No. 10	August 28, 1906 -- Chipewyan, Cree and others -- northern Saskatchewan. Area ceded, 85,800 square miles.
Government obligations	Reserves up to one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands

	with the consent of the Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; Indians who do not wish to live on reserves may have 160 acres a head in severalty off reserves; education; right to hunt, trap and fish.
Treaty presents	Indians $12.00, chiefs $32.00, headmen $22.00, medals and flags.
Annuities	Chiefs $25.00, headmen $15.00, Indians $5.00; distribution of twine and ammunition annually; triennial suit of clothes to chiefs and headmen.
Treaty No. 11	June 27, 1921 -- Slave, Dogrib, Loucheux, Hare and other Indians. Northwest Territories north of Great Slave Lake. Area ceded, 372,000 square miles.
Government obligations	Reserves one square mile for each family of five, subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to Government regulations; salaries of teachers.
Treaty presents	Medals and flags and copy of treaty for each chief; fishing, hunting and trapping equipment to

	value of $50.00 for each family of band; miscellaneous equipment.
Annuities	Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes to chiefs and headmen; annual distribution of twine, ammunition to the value of $3.00 to each Indian.
Treaty between His Majesty the King and the Chippewa Indians of Christian Island, Georgina Island and Rama.	October 31, 1923.
and Treaty between His Majesty the King and the Mississauga Indians of Rice Lake, Mud Lake, Scugog Lake and Alderville.	November 15, 1923. Indians ceded rights to an area of 20,100 square miles in southern and central Ontario between Lake Ontario and Georgian Bay.
Government obligations	$25.00 to each Indian signing treaty; $500,000 paid by Ontario, to be administered by the Department of Indian Affairs.

Legislation There is only one Indian act and one Indian administration in Canada. Before Confederation, in addition to the old Province of Canada, several of the colonies that now form Canada had Indian legislation and some administrative organization for Indian affairs. After Confederation, Parliament from time to time enacted legislation concerning Indians and this was consolidated in the Indian Act of 1876. Although it was changed and simplified by various amendments, this act remained the basic Indian law until 1951, when a new act came into force.

Legal status of Indians Apart from special provisions in the Indian Act, Indians are subject to federal, provincial and municipal laws and, in the same manner as

other Canadian citizens, Indians may sue and be sued and may enter freely into contractual obligations in ordinary business transactions. Their property on a reserve is exempt from taxation, and such property, except on a suit by another Indian, is also exempt from seizure.

Indians may vote at federal elections on the same basis as other citizens. With regard to provincial elections, the Indians are governed by the electoral laws of the various provinces.

Liquor has presented a special problem. From an early period it was thought necessary to control the liquor traffic with Indians and special legislation was passed by authorities prohibiting the sale of intoxicants to, and their use by, the Indian people. These laws were to protect them from exploitation by unscrupulous traders and individuals who might take advantage of them in economic matters, especially during the early fur-trading period.

Total prohibition of the use of any kind of intoxicant by Indians except for medicinal purposes is the significant feature of the liquor provisions of Indian legislation passed by the Parliament of Canada, which was consolidated in the Indian Act of 1876 and continued with minor changes until 1951, when legislation was broadened to allow the Indian people to decide their own course of action on this matter on a provincial and individual reserve basis.

Band management

The original political organization of the Indians varied considerably from tribe to tribe. It was usually very simple, involving only the recognition of a chief and headmen or councillors, either hereditary or chosen for their prowess or ability. As early as 1869, provision was made in the Indian legislation for local government on reserves in accordance with democratic principles. This provision has been broadened from time to time to meet the needs of Indian communities.

The Indians now elect band councils consisting of a chief and councillors who correspond to the local elective officers in rural municipalities. However, Indian bands who wish to adhere to their tribal system of choosing chiefs and councillors may continue to do so and those chosen exercise the same powers as an elected council. The councils are concerned with local conditions affecting members of the band and work closely with the representatives of the Department of Indian and Northern Affairs. They may make by-laws with regard to various matters of a local nature concerning the reserves and also have certain responsibilities with regard to the management of band funds, the surrender or lease of reserve lands, land allotment and band membership. Management of welfare assistance, community planning, economic development, school administration and other local programs

also may be placed in varying degrees within their administrative orbit. A Departmental contribution program has been developed to assist in financing many of these local projects. The right to vote has been extended to Indian women, many of whom are taking a keen interest in band affairs and are playing an effective part in band administration.

Finances

The Indian Trust Fund is made up of capitalized annuities and moneys derived from Indian assets.

Revenue to the Fund began with the settlement of Upper Canada, and the surrender for sale of Indian lands in that province. Today, major items of income to the Fund are derived from leases of Indian reserve lands, timber sales, oil royalties, the leasing of oil and gas exploration rights and the sale of gravel.

Before 1859, moneys were held for investment in commercial securities, municipal debentures and so on. In that year, the Government assumed the investments because investments in securities and debentures involved possible loss to the Fund and security was of prime importance.

It should be noted that the Trust Fund is not owned in common by all Indians in Canada but belongs to various bands. Some bands have well over $1 million, others have only a few dollars, while a considerable number of bands have no moneys at all and therefore no interest in the Trust Fund. This seeming inequality arises from the fact that some bands chose reserves rich in agricultural land, timber or minerals, and have been able to dispose of their surplus assets, depositing the proceeds in their trust accounts. Other bands chose reserves because of their suitability for hunting and fishing and these often lacked other resources from which revenue could be derived.

Expenditures from the moneys of a band held in the Trust Fund are permitted for any purpose considered in the interest of the band or the individual members thereof. Requests for expenditures originate with the councils of the respective bands.

Under the Indian Act, an Indian band may be permitted by Order in Council to control, manage and expend in whole or in part its revenue moneys. To date, 335 bands have been granted this authority. However, whether or not such authority has been granted to their bands, all band councils are encouraged to take the lead in planning for the expenditure of band funds.

When an Indian becomes enfranchised -- that is, when he gives up his Indian status and is no longer entitled to the rights and privileges

reserved under the Indian Act for Indians only -- he is paid a *per capita* share of the trust fund of the band to which he belongs.

Education

In Canada, education is generally under the jurisdiction of the individual provinces, but the provision of education services to Indians is the responsibility of the Federal Government.

The "in-school" education program from pre-school to secondary grades is carried out through the operation of federal schools, or by agreements with provincial schools, in which case the tuition costs are paid by the Federal Government. The schools follow provincial curricula, but are encouraged to provide special instructional materials and programs related to Indian heritage and culture. Student residences, boarding homes and counselling services are provided for students who are prevented from attending schools in their home areas because of isolation or for other reasons.

The Federal Government also provides a comprehensive program of financial assistance and counselling services in the post-school area, including vocational, occupational and post-secondary training in provincial institutions and universities. In addition, adult-education courses are available to provide adult Indians with basic education, educational upgrading and social education courses. An employment and relocation program offers on-the-job and in-service training services; relocation grants; counselling and follow-up services and mobility assistance.

Teachers

In common with other schools throughout Canada, Indian schools are attempting to secure the best-qualified teachers possible. Indian boys and girls are encouraged, through financial assistance, to enter the teaching profession to serve their own people.

Teachers engaged by the Department of Indian and Northern Affairs enjoy a salary schedule that compares favourably with that in effect in the provincial schools across Canada. When engaged in the Indian day-schools in isolated areas, most teachers receive furnished and heated quarters for which a moderate pay deduction is made.

Social services program

There is no specific federal legislation whereby the Federal Government is authorized to establish and/or maintain a social-services program on behalf of Indian residents of Canada.

The authority for providing that program is an allotment included in the funds appropriated each year by Parliament for the administration of Indian affairs. Appropriation for welfare purposes provides for financial assistance and services to: indigent, registered Indians living on reserves; specific categories of non-Indians living on

reserves; indigent, registered Indians living off reserves who are not considered to be eligible for assistance from any source in the non-Indian communities in which they may be living at the time of need.

The social-services program administered and financed by the Department of Indian and Northern Affairs includes social assistance, care and maintenance of children, maintenance of children, maintenance and rehabilitative services for physically and/or socially handicapped adults. It provides basic necessities of food, clothing, shelter, fuel and other household essentials for dependent Indians living on reserves under the same conditions as apply to other residents of the provinces and Yukon Territory. In the Northwest Territories, welfare benefits and services to Indian residents are the administrative responsibility of the territorial government.

Under Section 88 of the Indian Act, Indian residents are subject to the same provincial child-welfare legislation as non-Indian residents of a province. The welfare of neglected, dependent and delinquent Indian children is ensured through the enforcement of provincial legislation and provision of related services by provincial social welfare departments and accredited child-care agencies in each province. The Federal Government has entered into agreements with the governments of the Yukon, Manitoba and Nova Scotia, by which Indian children may receive the same welfare services as non-Indian children, in accordance with provincial child welfare legislation.

The Federal Government provides maintenance and care in homes for the aged and other institutions for physically and socially handicapped adults who need care which may not require active medical treatment.

In addition to the child-welfare agreements, the Federal Government entered into an agreement with Ontario in 1965 under which all provincial welfare programs are made available to Indians living in the province.

Under service contracts, private social agencies in Quebec are providing professional social services to Indian communities within their boundaries.

Indians are eligible for family and youth allowances, Old Age Security and the Guaranteed Income Supplement, which are administered and financed by the Federal Government. Certain provincial allowances in British Columbia, Ontario and Nova Scotia are also available to Indian residents.

Community Development

The Department defines community-development services as services intended to encourage and help people to participate in improving the social, economic and cultural conditions of their community life. These services are provided by individual community-development workers, who meet with community residents (initially, on an individual basis and later in small groups) to help them determine what local problem they need to solve, and can solve. Next, they must formulate and carry through an appropriate course of action. The object of the community-development process is, therefore, not so much to solve the specific problem chosen by the community as to use that problem as an opportunity for residents to learn, through experience, the skills involved in working together.

The development of leadership is encouraged through a variety of training programs sponsored jointly by the Federal Government, provincial governments and university extension departments in several provinces. The increasing demand for responsible leadership by Indian councils, voluntary organizations and other groups in Indian communities has resulted in a marked expansion in training courses for potential leaders and in workshops and short courses related to local needs.

The Department collaborates with public and private agencies in all aspects of community life. The efforts of volunteer groups are also encouraged, as well as Indian participation and initiative at the community level.

In most provinces, community-development services are now provided by Indian associations, under agreements with the Federal Government. Exceptions are: *Ontario*, where the provincial government supplies services under a similar agreement; *Quebec*, where community development is carried out by departmental staff; *the Northwest Territories*, where the territorial government embodies community-development techniques in a number of associated programs; *Alberta*, where consultations with bands are currently in process to determine the most suitable way to provide services.

The estimated total costs for agreements with Indian organizations in 1971-72 were $1.8 million, made up as follows:

Nova Scotia	$150,000
New Brunswick	165,000
Manitoba	500,000
Saskatchewan	500,000
Alberta	325,000
British Columbia	136,000
Yukon Territory	50,000

Economic development

A great many Indians still depend on the traditional pursuits of trapping, hunting and fishing for a livelihood. New techniques of development and management have increased the production of fur-bearing animals in recent years, particularly the introduction of a long-range program in co-operation with the various provinces. More recently, programs have been introduced to foster greater participation by Indians in the commercial fishing industry, and to encourage domestic fisheries on a co-operative basis as a means of providing subsistence food. Earnings from the wildlife and fisheries resources are augmented seasonally by such pursuits as guiding and the gathering of wild rice and other wild crops.

The traditional arts and crafts are still producing part-time employment for Indians in many areas. Handicraft items include moccasins, gloves, jackets, and *mukluks*(3) in northern and non-agricultural hunting areas, potato baskets in the Maritime Provinces and totem carvings, carved masks, fire baskets and Cowichan sweaters(4) on the West Coast. These provide an important supplementary income for the Indian families producing them. In pilot projects, wood-carvings and new, non-traditional products bearing Indian designs are being developed.

Recognizing the need to establish long-term economic objectives for, and in consultation with, the Indian people, the Department, through its Indian and Eskimo Economic Development Branch, helps individuals and bands to create business and employment, including mineral resources on Indian reserves.

Many of these programs are being conducted in co-operation with other federal departments, provincial governments and private organizations.

Assistance is in the form of loans, grants, loan guarantees, technical and management advice, and specialized training. The loans, grants and guarantees are provided from the Indian Economic Development Fund, which was capitalized at $19,050,000 for the fiscal year 1971-72.

In addition to the Fund, the Branch had appropriations of $14,845,000 for the fiscal year 1971-72 to encourage the development of economic activity through the provision of basic infrastructure and professional and technical services.

The Branch is also responsible for the administration of Indian reserves and surrendered lands, as well as the administration of certain categories of Indian estates.

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(3) Warm, knee-high boots of seal-skin worn by Indians and Eskimos of the Northwest Territories.

(4) Heavy sweater of grey, unbleached wool, originally having a black-and-white design but now often multi-coloured, made by the Cowichan Indians of southern Vancouver Island.

General

The medical care of Indians and Eskimos is within the jurisdiction of the Medical Services, Department of National Health and Welfare.

The National Museum of Man is the federal authority on traditional Indian culture and prehistory. Information in these matters may be obtained from the Education Section of the Museum.

General information on Canada's native peoples is available from Information Services, Department of Indian and Northern Affairs, Ottawa. Films and film strips may be obtained from the National Film Board, Ottawa.

Future patterns for Indian development

A welcome trend during the past few years has been an ever-increasing awareness on the part of the Indian people that their future lies largely within their own control. As a concrete illustration of this fact, the conduct of Indian affairs is assuming more and more importance in the eyes of individual Indians, groups or associations.

In a comparatively short time, strong, viable Indian associations have been formed in every province and territory of Canada. They are putting forward their own ideas on what should be done to help their people, and the Department is listening and co-operating. There is also an increasing recognition on the part of the Department of Indian and Northern Affairs that the Indian people should have as much responsibility as they are willing to assume. One example of this fact is the Contributions to Bands Program by which Indians bands, funded in part by the Federal Government, are able to control such basic necessities on their reserves as welfare, roads, maintenance, housing, etc.

This trend can be expected to accelerate in the future.

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THE INDIANS OF CANADA

(Reprinted from the Canada Year Book 1966.)

More than 210,000 Canadians are registered as Indians by the Department of Citizenship and Immigration. Registered Indians include all persons descended in the male line from a paternal ancestor of Indian identity, who have chosen to remain under Indian legislation. They are grouped, for the most part, into 558 bands and occupy or have access to 2,267 reserves or settlements having a total area of 5,975,647 acres.

Some 26 per cent of the registered Indians reside away from reserves. This portion includes those in the Yukon and Northwest Territories, for whom reserves have not been set aside. Many Indians, both on and off reserves, have specialized in various professions, trades and agricultural pursuits and others have found employment in a wide range of occupations and fitted into the economy of the areas in which they live. Some 290 Indians are employed by the Indian Affairs Branch of the Department of Citizenship and Immigration, 109 of them as teachers. In the northern and other outlying areas, hunting, fishing and trapping remain an important means of livelihood for Indians.

Apart from special provisions in the Indian Act, Indians are subject to all laws of general application. They are liable for taxation of property held off a reserve and for any income they earn off a reserve. They may vote in federal elections on the same basis as other citizens and in provincial elections where the electoral laws of the province permit. Indians are free to enter into contractual obligations and may sue and be sued. However, their real and personal property situated on a reserve is exempt from seizure except on suit by another Indian.

A Departmental census of Indian population is taken every five years and the numbers recorded at the three latest censuses - 1949, 1954 and 1959 - are given in Table 2; the figures for 1960-64 are taken from band membership lists kept for administrative purposes by the Indian Affairs Branch.

The Indian population in each province is classified by age group and sex in Table 3. The rapid growth of that population in recent years is indicated by the fact that in 1964 approximately 58 per cent of the Indians were under 21 years of age compared with 42 per cent of the population of Canada as a whole. Religious denominations of the Indian population are given in Table 4.

Administration

Pursuant to the British North America Act, the administration of Indian affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada. Since January 1950, Indian affairs have been the responsibility of a Branch of the Department of Citizenship and Immigration.

The Indian Affairs Branch is composed of a headquarters staff at Ottawa, eight regional offices, two district offices in the Province of Ontario and 87 field agencies. Specialists in such matters as education, economic development, community development, resource management, social welfare, and engineering and construction are attached to headquarters and regional staffs. Liaison is maintained with the Indian and Northern Health Services of the Department of National Health and Welfare, the federal agency concerned with the medical care of Indians.

It is the primary function of the Indian Affairs Branch to administer the affairs of Indians in a manner that will enable them to participate fully in the social and economic life of the country. To this end, the Branch has brought into effect a wide range of programmes in the fields of education, economic development, social welfare and community development. Underlying administrative duties of the Branch include the management of Indian reserves and surrendered lands, the administration of band funds, estates management, enfranchisement of Indians and the administration of treaty obligations.

Welfare

Welfare services and social benefits available to Indians at present include those administered and financed by the Indian Affairs Branch and Indian bands, those developed through co-operative cost-sharing arrangements with provincial, municipal and private organizations, and programmes conducted by other federal and provincial government departments.

Indians are eligible for family allowances, youth allowances and old-age security administered by the Federal Government, as well as for old-age assistance and blind and disabled persons' allowances administered by provincial governments. In the Province of Ontario, Indian women may receive mothers' allowances and assistance to widows and unmarried women on the same basis as non-Indian women; indigent Indian mothers in Quebec are eligible for needy mothers' allowances and, upon application, abandoned children and adult Indians in Nova Scotia receive certain benefits in accordance with the Nova Scotia Social Assistance Act.

As there is no specific welfare legislation respecting Indians in either the Indian Act or other federal statute, the Indian Affairs Branch must rely upon provincial welfare legislation and upon provincially-accredited welfare agencies for the enforcement of such legislation. The Federal Government has negotiated cost-sharing arrangements with various provincial governments and private welfare agencies for the extension of child welfare services and for rehabilitation programmes for handicapped Indians. Agreements with the governments of the Yukon Territory, the Northwest Territories, Manitoba, Ontario and Nova Scotia make provision for child welfare services to Indian reserves. In other provinces child welfare services are provided although formal agreements have not been negotiated. The Federal Government assumes responsibility for the maintenance of Indian children under the care and supervision of child welfare agencies (governmental and private); maintenance is paid for children placed in foster homes by Indian Affairs Branch field staff when the service of a child-caring agency is not available and also for children committed by the courts to training-schools and correctional institutions.

Care and maintenance in homes for the aged and other institutions are available to physically and socially handicapped adults who need such help because of senility or chronic illness but do not require active medical treatment.

The implementation of a federal-provincial statement of policy on social assistance and health services ensures that Indians living off reserves in British Columbia may secure aid when and where they need help. The Province of British Columbia shares with the Federal Government the costs of two continuing projects in the Prince Rupert and Babine areas designed to study and deal with specific welfare problems of Indians.

About half the Indian population of Ontario (35 Indian bands) assume municipal responsibilities by administering their own programmes under the terms of the General Welfare Assistance Act of Ontario. Provincial rehabilitation services are generally extended to handicapped Indians on the same basis as to non-Indians.

When in need, Indians who live on Indian reserves or in recognized Indian communities receive food, fuel, clothing, essential household equipment, shelter and supply and repair of prosthetic equipment from the Indian Affairs Branch. Indians who become stranded away from home in Canada may be given return transportation if they are unemployable or if employment is not available. It is expected that Indians living in non-Indian communities who need aid will be assisted by local municipal or provincial welfare agencies. Claims from such agencies for reimbursement on a charge-back basis are paid if persons so assisted have not established eligibility through residence.

Community Development

The Indian Affairs Branch conducts a comprehensive community development programme which is expected to be a major instrument for improving the economic, social and cultural life of Indians. This involves the use of trained persons to assist Indian groups to gain further skills and interest in dealing with community problems.

Resource and Industrial Development

Increasing interest in the development of commercial enterprises on Indian reserves has been evident in recent years. In a number of areas, Indian bands have developed portions of their lands to serve as industrial parks. Indians have also shown a growing interest in co-operatives. In March 1965, there were more than 30 co-operatives in which membership was wholly or substantially Indian. Included were producers' co-operatives, mostly engaged in pulpwood cutting and fishing with a few in the handicraft field, as well as consumers' co-operatives and credit unions. In addition, 20 or more Indian projects, mostly fisheries, were operated on a co-operative basis under Indian Affairs Branch programmes, although not formally incorporated.

Placement officers of the Indian Affairs Branch, located at a number of centres across Canada and working in co-operation with the National Employment Service, promote Indian employment in a wide range of occupations. The programme includes vocational and trade training. Also, the Indian Affairs Branch has arranged for community organizations to counsel Indians who are becoming established in urban centres outside reserves, and to foster the relocation of Indian families in frontier communities associated with the mining industries, providing counsel and other assistance.

Approximately $1,210,000 was spent in 1964-65 under the Community Employment Programme, which provides employment on reserves through financing projects to develop and improve public assets on the reserves. Indian bands are encouraged to become directly involved in the planning and operation of these projects and thus assume greater responsibility in developing their communities and natural resources.

In the field of renewable natural resources development, some provinces co-operate in programmes for Indians under formal agreement; others co-operate informally with the Indian Affairs Branch, with similar results. Although fur prices declined somewhat in 1964, a trend toward a return to trapping in isolated areas continued. Participation by Indians in inland fisheries has expanded steadily in recent years and it is estimated that the total Indian commercial production from all inland waters was about 20 million lbs. during the 1964-65 season, with an equal amount for domestic consumption. Forestry operations on the reserves and in areas adjacent to the reserves provide considerable employment for Indians, who produce about 90 per cent of the annual reserve cut. The sale of forest products from reserves during 1964-65 totalled approximately $10 million and band funds were enriched by about $1 million from timber dues. Indians are given assistance in the operation of lumber mills, fence-post peeler and treatment plants, and charcoal kilns; reforestation projects and forest fire-fighting provide further income. The annual revenue to band funds from the exploitation of mineral resources on reserve lands averages about $2 million a year, most of it from oil and gas resources in Alberta.

In 1964-65, Indians made about $1-million worth of handicraft items for sale and their own use. Interest in their traditional crafts has been revived and expanding markets have helped to bring about an

annual growth of some 17 per cent in the industry. To encourage this important source of revenue, the Indian Affairs Branch maintains a marketing service and provides basic materials and other types of assistance on a repayable basis.

Indian farmers are eligible for assistance under the Prairie Farm Rehabilitation Act, the Prairie Farm Assistance Act, and other federal statutes of general application. In addition, the Branch provides financial assistance to encourage young Indians to engage in farming and to help those already so engaged. The Branch is prepared to help Indians to finance co-operatives and small business when competent management is provided and the Indians concerned are familiar with the business principles and practices involved and have a financial stake in the enterprise.

Education

This major key to continued Indian progress receives ever-increasing support from Indian parents, from their school committees, from provincial governments, and from professional groups specifically concerned with classroom instruction of Indian pupils. The Indian Affairs Branch maintains and operates a number of schools for Indians, but 22,764 of the 55,475 Indian school population attend provincial schools. Attendance of Indians at provincial schools has been arranged, for the most part, through agreements between the Branch and individual school boards. In 1964, however, an agreement was concluded with the Province of Manitoba to provide for a uniform tuition fee to be paid by the Branch for Indian pupils attending schools under the jurisdiction of that province. Manitoba also passed legislation to give Indian children the right to attend any provincial school.

There are three types of Indian school, all operated at the expense of the Federal Government. On many reserves, day schools provide education for children who live at home. Residential schools care for orphaned children, children from broken homes, and for those who, because of isolation or for other reasons, are unable to attend day schools. The third type of school gives instruction to children confined to hospital.

All standard classroom supplies and authorized textbooks are used in Indian schools, which follow generally the curriculum of the province in which they are located. Financial assistance for pupils attending non-Indian schools varies from payment of tuition fees to full maintenance. Promising senior students are awarded scholarships to attend university or vocational school and scholarships are given to those who show promise in the arts.

1. Indian Land in Reserves and Number of Bands, by Province, as at Mar. 31, 1965

Province or Territory	Bands	Reserves[1]	Total Area
	No.	No.	Acres
Prince Edward Island	1	4	2,741
Nova Scotia	11	38	25,571
New Brunswick	15	23	37,655
Quebec	41	39(13)	188,178
Ontario	112	169(4)	1,539,873
Manitoba	51	101	522,351
Saskatchewan	67	123	1,224,583
Alberta	41	96(4)	1,607,400
British Columbia	190	1,621	820,404
Yukon Territory	13	25(25)	4,784
Northwest Territories	16	28(28)	2,107
Totals	558	2,267(74)	5,975,647

2. Indian Population, by Province, Departmental Censuses 1949, 1954 and 1959 and Estimates 1960-64

Province or Territory	1949	1954	1959[2]	1960[2]	1961[2]	1962[2]	1963[2]	1964[2]
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island	273	272	341	343	348	363	374	376
Nova Scotia	2,641	3,002	3,561	3,630	3,746	3,834	3,935	3,994
New Brunswick	2,139	2,629	3,183	3,280	3,397	3,524	3,629	3,717
Quebec	15,970	17,574	20,453	21,154	21,793	22,373	23,043	23,709
Ontario	34,571	37,255	42,668	43,767	44,942	46,172	47,260	48,465
Manitoba	17,549	19,684	23,658	24,608	25,681	26,676	27,778	28,833
Saskatchewan	16,308	18,750	23,280	24,278	25,334	26,483	27,672	28,914
Alberta	13,805	15,715	19,287	20,053	20,931	21,807	22,738	23,642
British Columbia	27,936	31,086	36,229	37,375	38,616	39,784	40,990	42,141
Yukon Territory	1,443	1,568	1,868	1,923	2,006	2,096	2,142	2,215
Northwest Territories	3,772	4,023	4,598	4,758	4,915	5,108	5,235	5,383
Totals	136,407	151,558	179,126	185,169	191,709	198,220	204,796	211,389

1. Figures in parentheses indicate the number of Indian settlements which are not officially reserves included in the totals.

2. As at Dec. 31

3. Indian Population classified by Age Group and Sex, by Province, as at Dec. 31, 1964

Province or Territory	0-5 Years		6-15 Years		16-20 Years		21-64 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island..	23	.40	47	43	15	15	90	83
Nova Scotia.....	341	324	522	522	220	198	872	756
New Brunswick.....	354	368	541	492	182	188	764	662
Quebec.....	2,155	2,149	2,807	2,777	1,094	1,114	5,323	4,887
Ontario.....	4,485	4,367	6,245	6,068	2,455	2,392	10,233	9,226
Manitoba.....	3,531	3,481	3,930	3,899	1,439	1,391	5,374	4,620
Saskatchewan.....	3,754	3,699	4,053	4,040	1,318	1,315	5,058	4,630
Alberta.....	2,997	2,934	3,290	3,322	1,144	1,148	4,120	3,760
British Columbia.....	4,743	4,772	5,791	5,720	2,144	2,094	8,089	7,054
Yukon Territory.....	286	253	259	284	111	110	426	367
Northwest Territories.	546	587	649	662	261	235	1,120	974
Totals.....	23,215	22,974	28,134	27,829	10,383	10,200	41,469	37,019

Province or Territory	65-69 Years		70+ Years		Not Stated		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island..	3	2	2	4	3	6	183	193
Nova Scotia.....	26	21	56	47	35	54	2,072	1,922
New Brunswick.....	30	14	45	37	15	25	1,931	1,786
Quebec.....	209	208	428	375	42	141	12,058	11,651
Ontario.....	475	360	809	749	186	415	24,888	23,577
Manitoba.....	230	148	370	341	12	67	14,886	13,947
Saskatchewan.....	186	162	364	280	6	49	14,739	14,175
Alberta.....	166	112	309	229	36	75	12,062	11,580
British Columbia.....	399	248	552	471	7	'57	21,725	20,416
Yukon Territory.....	14	10	40	53	--	2	1,136	1,079
Northwest Territories.	57	53	102	100	14	23	2,749	2,634
Totals.....	1,795	1,338	3,077	2,686	356	914	108,429	102,960

4. Religious Denominations of the Indian Population, by Province, as at Dec. 31, 1964

Province or Territory	Roman Catholic	Anglican	United Church	Baptist	Presbyterian	Pentecostal	Salvation Army	Other Christian Belief	Aboriginal	Not Stated	All Denominations
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
P.E.I.	376	--	--	--	--	--	--	--	--	--	376
N.S.	3,951	--	6	--	--	--	--	4	--	33	3,994
N.B.	3,693	--	1	--	--	--	--	--	--	23	3,717
Que.	17,116	4,802	855	5	--	32	--	212	220	467	23,709
Ont.	16,864	14,022	7,851	3,235	942	389	4	497	2,714	1,947	48,465
Man.	11,257	8,402	7,198	--	1,249	275	--	125	86	241	28,833
Sask.	15,541	8,584	2,512	65	92	41	--	423	1,381	275	28,914
Alta.	16,933	3,080	2,611	178	6	12	--	543	69	210	23,642
B.C.	24,510	8,041	7,932	--	2	385	740	241	--	290	42,141
Yukon	544	1,544	--	121	--	--	--	--	--	6	2,215
N.W.T.	4,213	899	--	--	1	--	--	--	--	270	5,385
Totals...	114,998	49,374	28,966	3,604	2,292	1,134	744	2,045	4,470	3,762	211,389

5. Enrolment of Indian Pupils in All Schools classified by Type of School and by Grade, School Year 1963-64

Classification	Grade				Special	Post High School	Not Graded	Total
	Pre-1	1-6	7-8	9-13				
	No.	No.	No.	No.	No.	No.	No.	No.
Indian schools	3,575	24,791	3,089	750	126	--	380[1]	32,711
Provincial and private schools	322	10,662	3,072	3,315	264	554	4,575	22,764[2]
All Schools	3,897	35,453	6,161	4,065	390	554	4,955	55,475

[1] Includes 142 seasonal and 238 hospital pupils. [2] Does not include 1,206 pupils of other ethnic groups attending Indian schools.

Enrolment of Indian Pupils in Provincial, Private and Territorial Schools classified by Grade or Type of Training, by Province, School Year 1963-64

Classification	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C	Yukon	N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Pre-grade 1	--	22	--	50	88	30	48	--	45	--	39	322
Grade-												
1	--	17	14	134	319	287	355	255	673	39	238	2,331
2	1	15	11	140	293	180	196	218	519	17	158	1,748
3	--	20	10	138	280	226	197	168	530	10	151	1,730
4	1	25	16	159	336	215	197	185	454	11	138	1,737
5	--	22	26	114	299	138	173	198	416	57	110	1,553
6	--	33	19	178	322	145	126	203	406	33	98	1,563
7	--	31	28	215	356	131	112	243	412	38	68	1,634
8	--	17	21	218	316	108	90	216	394	31	27	1,438
9	2	43	20	166	521	93	138	119	411	13	28	1,554
10	--	23	17	83	257	77	76	77	282	16	18	926
11	--	11	5	50	130	38	59	43	191	5	9	541
12	--	3	5	16	80	10	13	30	101	1	3	262
13	--	--	--	1	19	--	--	--	12	--	--	32
University	--	7	3	20	16	1	8	7	6	--	--	68
Teacher training	--	--	1	1	7	--	3	--	--	--	2	14
Nurses training	--	--	--	4	2	--	4	4	2	--	--	16
Nurses aid	--	--	--	--	4	2	--	3	9	--	--	18
Vocational	--	9	6	60	37	22	30	63	89	56	66	438
Auxiliary	--	2	1	3	141	5	5	23	84	--	--	264
Not graded	25	122	49	477	1,878	374	497	218	899	35	1	4,575
Totals	29	422	252	2,227	5,701	2,082	2,327	2,273	5,935	362	1,154	22,764

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(Revised July 1962)

THE CANADIAN INDIAN

At the time of the first settlements in North America about four centuries ago, the Indian population of what is now Canada was, according to the best estimates of anthropologists, about 200,000. Shortly after the advent of the Europeans, the Indian population started to decline, and continued to dwindle until it became a common belief that the Indians were a dying race. In the last half century, however, there has been a steady increase and today the Indian population of Canada is over 190,000.

There are nearly 600 separate Indian communities, known as "bands". With the exception of certain nomadic groups inhabiting the outlying and northern regions, these bands are located on more than 2,200 "reserves", varying in size from a few acres to more than five hundred square miles, set aside by the Canadian Government for the use and benefit of Indians. A number of Indians in all parts of Canada have chosen to live off their reserves as members of the general community.

Among the Indians are to be found successful farmers, ranchers, lumbermen, fishermen and trappers, while others are pursuing careers as doctors, dentists, lawyers, teachers, nurses, clergymen, soldiers, industrial workers, stenographers, mechanics, salesmen and tradesmen. The Canadian Indian has proven himself quick to learn and is well able to assume a place beside his fellow Canadians of non-Indian status.

Although the origin of the Indians remains uncertain, anthropologists believe that they came to America in successive migrations in pre-historic times from Northern Asia, probably by way of Bering Sea.

The Indians are not a single race, but are divided into a number of basic language groups that are, in turn, subdivided into tribal groups with many local dialects. There are ten linguistic groups, of which four are found east of the Rocky Mountains - Algonkian, Athapaskan, Iroquoian and Siouan, and six in British Columbia - Kootenayan, Salishan, Wakashan, Tsimshian, Haida and Tlinkit.

These groups are further subdivided into many tribes with widely differing physical and cultural characteristics. The Indians of Algonkian stock are the most numerous, covering an area from the Atlantic Ocean to the Rockies; they include such well-known tribes as the Micmacs of Prince Edward Island, Nova Scotia and New Brunswick, the Montagnais of Quebec and the Ojibway, Crees and Blackfoot of Ontario and the Prairie Provinces.

Iroquoian stock, including the Hurons, is found mainly in Ontario and Quebec, Athapaskan stock inhabits the Northwest Territories and the Yukon, while tribes of Sioux inhabit parts of Manitoba, Saskatchewan and Alberta.

The Indian population of Canada is widely scattered, with differing racial and cultural backgrounds, and in varying stages of economic and social development, from the primitive nomadic hunter to the highly skilled industrial worker or member of the learned professions. Like every other community in Canada, the Indian band or group is subject to the economic, social and geographical influences of the region in which it lives. For general purposes the Indian population may be grouped according to the natural economic zones of the country:

(1) Atlantic Seaboard - The tribes inhabiting the Atlantic seaboard originally lived by hunting and had no agriculture. Today, however, they are mainly engaged in forestry, agriculture, fishing, and native handicrafts, and face much the same problems as other Canadians making their homes in the same region.

(2) St. Lawrence Basin, South of the Laurentian Plateau - At the time of European settlement, the St. Lawrence and Great Lakes regions that became old Ontario and old Quebec were inhabited, as now, by two main groups of Indians: Iroquoians, including Hurons, and Algonkians, including Ojibways, Algonkins, and Abenakis. The economy and culture of these two main groups differed widely. The Iroquoians were agriculturalists, being the only aboriginal race in Canada that had developed agriculture to any great extent before the coming of the European, while the Algonkians depended mainly on the chase for their livelihood. Today, those in the settled areas are engaged mainly in farming and industrial and professional pursuits, while those in the more remote areas rely mostly on forestry, fishing, hunting, and trapping for a living.

(3) The Prairies - In the Prairie Provinces the Indians, who depended upon the buffalo for practically all their needs, had to adapt themselves to new conditions following the near extinction of this animal. An intensive policy of agricultural assistance has been necessary. Many Indians are now successful ranchers and grain growers, a remarkable transition in a few generations, in view of the fact that they had no previous agricultural experience.

(4) Pacific Region - The Indians inhabiting the coastal areas of this region were traditionally sailors and fishermen and today they are active in the commercial fishing industry. In the interior, fruit growing and ranching are important, while many Indians earn their livelihood in lumbering. In the northern area, trapping is the principal occupation.

(5) Precambrian Shield - Originally, the Indians in this vast area were entirely dependent on hunting and fishing for their food, alternating between periods of plenty in good game years and periods of privation and starvation when game was scarce. On the whole, they still depend to a large extent upon the chase for their livelihood. But this region has witnessed a remarkable change in recent years with the advent of the airplane. The pulpwood industry in the more accessible regions provides employment for many Indians, while mining and other projects are changing employment patterns.

ADMINISTRATION

As early as 1670, during the reign of Charles II, instructions were given to the governors of the colonies to the effect that Indians who desired to place themselves under British protection should be well received and protected. Later it was found necessary to establish an office devoted solely to the administration of Indian affairs, and in 1755 Sir William Johnson was appointed Indian Superintendent with headquarters in the Mohawk Valley, in what is now the State of New York. The establishment of this office was the genesis of future Indian administrative organization in North America. Following the American Revolution, the Indian office was removed

to Canada. From that time on, a continuing administrative organization has been maintained for the protection and advancement of Indian interests.

Until 1860, the Imperial Government was responsible for the management and expense of Indian affairs, but in that year it was decided that the Province of Canada should assume the responsibility. Accordingly, the management of Indian affairs was brought under the control of the Crown Lands Department on July 1, 1860, the Commissioner of Crown Lands being from that date Chief Superintendent of Indian Affairs.

By a special provision in the British North America Act of 1867, the administration of Indian affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada. Indian affairs were made the responsibility of the Department of the Secretary of State at the time of Confederation, and, in 1873, they became the responsibility of a branch of the Department of the Interior. In 1880, a separate Department of Indian Affairs was established, which continued until 1936, when Indian affairs again became a branch, this time of the Department of Mines and Resources. Since January 1950, Indian affairs have been the responsibility of a branch of the Department of Citizenship and Immigration.

The primary function of the Indian Affairs Branch is to administer the affairs of the Indians of Canada in a manner that will enable them to become increasingly self-supporting and independent members of the community. Among the important functions of Canadian Indian administration are: the management of Indian reserves and surrendered land; the administration of band funds; education; welfare projects; relief; family allowances; rehabilitation of Indian veterans on reserves; descent of property; Indian treaty obligations; enfranchisement of Indians; and a variety of other matters. Administration is carried on through a headquarters staff at Ottawa and Indian agencies in the field, each agency being responsible for one or more reserves and bands. In addition to the superintendent, the staff of an agency may include a clerk, stenographer, and assistants according to its special requirements. Medical staff is provided, as required, by the Department of National Health and Welfare. The work of the agencies is supervised by eight regional supervisors and in British Columbia by a commissioner.

INDIAN TREATIES

Early in the settlement of North America, the British recognized an Indian title or interest in the soil that could be relinquished or done away with only if the Indians agreed and then only by transfer to the Crown. This gave rise to the practice of making agreements or treaties, as they were afterwards called, with individual tribes. The policy began during colonial times in what is now the United States and was afterwards introduced by the British into Canada.

The Royal Proclamation of 1763 provided that no Indian could be dispossessed of his lands without his consent and the consent of the Crown. In accordance with this principle, treaties have been made from time to time with various Indian tribes during the opening up of the country for settlement. In general, the terms were that, in recognition of the surrendering of Indian interest in the soil, the Crown undertook to set aside reserves and provide other benefits such as cash payments, annuities, educational facilities and other considerations. About half the Indian population of Canada are under formal treaties. The needs of Indians not under treaty, however, receive no less attention from the Government on that account.

The following is a summary of the main provisions of the Canadian Indian treaties. It may be noted that these do not include the Iroquois of Brantford and Tyendinaga or certain other groups who immigrated to Canada from what is now the United States and were given reserve lands in Canada.

The distinction is that the treaties were made with the original Indian inhabitants, Ojibways and Mississaugas, whose aboriginal interest in the soil in Upper Canada had to be extinguished.

Province of Canada Treaties

Robinson Superior Treaty - September 7, 1850 - between the Province of Canada and the Ojibway Indians, north shore and hinterland of Lake Superior.

Area ceded, 16,700 square miles.

AND

Robinson Huron Treaty - September 9, 1850 - between the Province of Canada and the Ojibway Indians, north shore and hinterland of Lake Huron.

Area ceded, 35,700 square miles.

Indians promised - Not to sell, lease or dispose of minerals or other reserve products without consent of the Superintendent General of Indian Affairs and not to hinder exploration or prospecting.

Government Obligations - Reserves as set forth in treaty schedules (no per capita or family land grant); right to hunt and fish except on lands occupied by individuals or companies with consent of province (no restriction as to regulations).

Total cash payment at treaty £4000; perpetual annuity of £1100 (now $4.00 per capita).

Manitoulin Island Treaty - October 6, 1862 - between the Province of Canada and the Ottawa, Ojibway and other Indians.

Area ceded - all portions of the Great Manitoulin Island except those to be set apart as reserve lands for the use of Indians.

Government Obligations - 100 acres a family, or 50 acres for each single person over the age of 21, or single orphan under the age of 21; total cash payment at treaty $700.00; annual interest payment from proceeds of land sales; same fishing rights as those enjoyed by white settlers.

Post-Confederation Treaties

Treaty No. 1 - August 3, 1871 - Chippewa (Ojibway), Swampy Cree and others, Southern Manitoba centering on Portage la Prairie and Winnipeg districts.

Area ceded, 16,700 square miles.

Indians promised - to observe treaty; maintain peace; not to molest persons or property. (Same promise in subsequent treaties, with additional undertaking to assist in bringing Indian offenders to justice).

Government Obligations - Reserves, 160 acres a family of five plus additional 25 square miles; control of liquor traffic; maintenance of school on each reserve; commissioners to take census.

Annuity - Originally $3.00, raised to $5.00 in 1875; chiefs $25.00, headmen $15.00; triennial suit of clothes to each chief and headman.

Treaty No. 2 - August 21, 1871 - Chippewa and others. Central Manitoba, Southeastern Saskatchewan and Southwestern Manitoba.

Area ceded, 35,700 square miles.

Government Obligations - Reserves, 160 acres a family of five; school on each reserve; control of liquor traffic; commissioners to take census.

Annuity - $3.00 a head raised to $5.00 in 1875; chiefs $25.00, headmen $15.00; triennial suit of clothes to each chief and headman (added in 1875).

Treaty No. 3 - October 3, 1873 - Saulteaux tribe of the Ojibway and other Indians. Extreme southwest of Ontario lying west of the Great Lakes and small portion of Southeastern Manitoba.

Area ceded, 55,000 square miles.

Government Obligations - Reserves up to one square mile a family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for Federal public purposes, subject to compensation for improvements; schools; control of liquor traffic; hunting and fishing in ceded area subject to Dominion regulations.

Treaty Presents - $12.00 a head; various items for agricultural equipment, supplies, etc.; flags and medals.

Annuities - $5.00 a head; chiefs $25.00, headmen $15.00; $1,500.00 annually for ammunition; triennial suit of clothes to each chief and headman.

Treaty No. 4 - September 15, 1874 - Cree, Saulteaux and others. Mainly South Saskatchewan.

Area ceded, 74,600 square miles.

Government Obligations - Reserves one square mile for family of five - subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; schools; right to hunt, trap and fish in tract surrendered subject to government regulations; control of liquor traffic.

Treaty Presents - Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous agricultural equipment, supplies, etc.; flags and medals.

Annuities - Indians $5.00, chiefs $25.00, headmen $15.00; $750 annually for ball and twine; triennial suit of clothes for chiefs and headmen.

Treaty No. 5 - September 24, 1875 - Saulteaux and Swampy Cree tribes and others. Northern Manitoba and part of extreme Western Ontario, north of Treaty No. 3.

Area ceded, 100,000 square miles.

Government Obligations - Reserves 160 acres to a family of five (100 acres to a family of five at Fisher River) - subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for Federal public purposes subject to compensation for improvements; right to navigation of all lakes and rivers and free access to the shores thereof; schools; right to hunt and fish in ceded area subject to government regulations; control of liquor traffic.

Treaty Presents - Miscellaneous agricultural equipment, supplies, etc.; flags, medals.

Annuities - $5.00 per capita, chiefs $25.00, headmen $15.00; $500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen.

Treaty No. 6 - August 23, 1876, and September 9, 1876 - Plain and Wood Cree tribes and others. Central Alberta and central Saskatchewan.

Area ceded, 121,000 square miles.

Government Obligations - Reserves 1 square mile to each family of five; subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements; schools; control of liquor traffic; right to hunt and fish in tract surrendered subject to government requlations.

Treaty Presents - $12.00 per capita, miscellaneous agricultural equipment, supplies, etc.; flags and medals.

Annuities - $5.00 per capita, chiefs $25.00, headmen $15.00; $1,500.00 annually for ammunition and twine; triennial suit of clothes for chiefs and headmen. Assistance in case pestilence and famine; medicine chest for use of Indians.

Treaty No. 7 - September 22, 1877 - Blackfoot, Blood, Peigan, Sarcee, Stony and others - Southern Alberta.

Area ceded 42,900 square miles.

Government Obligations - Reserves 1 square mile for each family of five; right to hunt subject to Government regulations (nothing concerning fishing, school teachers).

Treaty Presents - Indians $12.00, chiefs $25.00, headmen $15.00; miscellaneous items and equipment; flags and medals.

Annuities - Chiefs $25.00, headmen $15.00, Indians $5.00; $2,000.00 annually for ammunition; triennial suit of clothes for chiefs and councillors.

Treaty No. 8 - June 21, 1899 - Cree, Beaver, Chipewyan and others. Northern Alberta, the Northwest Territories, south of the Great Slave Lake and Northeastern British Columbia.

Area ceded, 324,900 square miles.

Government Obligations - Reserves 1 square mile for each family of five or 160 acres in severalty, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish subject to government regulations; school teachers.

Treaty Presents - Indians $12.00, chiefs $32.00, headmen $22.00; miscellaneous agricultural equipment, supplies, etc.; ammunition and twine $1.00 per capita for families preferring hunting and trapping to agriculture; medals and flags.

Annuities - Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes for chiefs and headmen.

Treaty No. 9 - November 6, 1905 - among the Crown Dominion of Canada, the Crown Province of Ontario and Ojibway, Cree and others. That part of Ontario drained into Hudson Bay. Paid by Ontario.

Area ceded, 90,000 square miles.

Government Obligations - Reserves up to 1 square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to government regulations; schools.

Treaty Presents - $8.00 per capita; flags.

Annuities - $4.00 per capita.

Treaty No. 10 - July 20, 1906 - Chipewyan, Cree and others - Northern Saskatchewan.

Area ceded, 85,800 square miles.

Government Obligations - Reserves up to 1 square mile for each family of five, subject to Government's right to deal with settlers on reserve lands, right to sell or lease reserve lands with the consent of the Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; Indians who do not wish to live on reserves may have 160 acres per capita in severalty off reserves; education; right to hunt, trap and fish.

Treaty Presents - Indians $12.00, chiefs $32.00, headmen $22.00, medals and flags.

Annuities - Chiefs $25.00, headmen $15.00, Indians $5.00; distribution of twine and ammunition annually; triennial suit of clothes to chiefs and headmen.

Treaty No. 11 - June 27, 1921 - Slave, Dogrib, Loucheux, Hare and other Indians. The Northwest Territories north of Great Slave Lake.

Area ceded, 372,000 square miles.

Government Obligations - Reserves 1 square mile for each family of five, subject to Government's right to deal with settlers on reserve lands; right to sell or lease reserve lands with consent of Indians and to appropriate reserve lands for federal public purposes subject to compensation for improvements and lands; right to hunt, trap and fish in ceded area subject to government regulations; salaries of teachers.

Treaty Presents - Medals and flags and copy of treaty for each chief, fishing, hunting and trapping equipment to value of $50.00 for each family of band; miscellaneous equipment.

Annuities - Indians $5.00, chiefs $25.00, headmen $15.00; triennial suit of clothes to chiefs and headmen; annual distribution of twine, ammunition, etc.

Treaty made between His Majesty the King and the Chippewa Indians of Christian Island, Georgina Island and Rama, October 31, 1923.

AND

Treaty made between His Majesty the King and the Mississauga Indians of Rice Lake, Mud Lake, Scugog Lake and Alderville, November 15, 1923.

Indians ceded hunting, fishing and trapping rights over an area of 20,100 square miles in Southern and central Ontario between Lake Ontario and Georgian Bay.

Government Obligations - $500,000 paid by Ontario.

LEGISLATION

There are only one Indian Act and one Indian administration in Canada. Before Confederation, in addition to the old Province of Canada, several of the colonies that now form Canada had Indian legislation and some administrative organization for Indian affairs. After Confederation, Parliament from time to time enacted legislation concerning Indians, which was first consolidated in the Indian Act of 1876. Though changed and simplified by various amendments, this Act remained, the basic Indian law until 1951, when a new one came into force. In keeping with government policy of encouraging the Indians to take an active interest in their own affairs, they were given an opportunity to review the proposed legislation and to make representations regarding its provisions. Also a group of representative Indians studied the provisions of the Act with the Minister of Citizenship and Immigration who is responsible for Indian affairs.

LEGAL STATUS OF INDIANS

Apart from special provisions in the Indian Act, Indians are subject to federal, provincial and municipal laws, in the same manner as other Canadian citizens. Indians may sue and be sued and may enter freely into contractual obligations in ordinary business transactions. Their real and personal property held on a reserve is exempt from taxation, and such property, except on a suit by another Indian, is also exempt from seizure.

Indians may vote at federal elections on the same basis as other citizens. With regard to provincial elections, the Indians are governed by the electoral laws of the various provinces.

Liquor has presented a special problem. From an early period it was thought necessary to control the liquor traffic with Indians and special legislation was passed by the competent governmental authority in provinces and colonies, even before Confederation, prohibiting the sale to, and use of, intoxicants by Indians in order to protect them from exploitation by unscrupulous traders and individuals who might take advantage of them in economic matters. This was especially true during the early fur-trading period.

Total prohibition of the use of any kind of intoxicant by Indians except for medicinal purposes is the significant feature of the liquor provisions of Indian legislation passed by the Parliament of Canada, which was consolidated in the Indian Act of 1876 and continued with minor changes until 1951.

Provision is now made under the Indian Act for three stages of development. The first is one of total prohibition, as in the past. The second provides for the consumption of alcoholic beverages in public places and is brought into effect on the request of the province concerned and with the concurrence of the Governor in Council. This stage is now in effect in the provinces of British Columbia, Saskatchewan, Manitoba, Ontario, and Nova Scotia and in the Yukon and Northwest Territories. The third stage, permitting Indians to purchase intoxicants in the same manner as other citizens in accordance with the laws of the province may be proclaimed by the Governor in Council at the request of the province concerned. This was proclaimed for the Province of Ontario on November 6, 1958, for the Northwest Territories on November 18, 1959, for Saskatchewan on July 1, 1960, and for Manitoba on July 13, 1960. Provision is also made in the Act for Indians residing in a province where the third stage is in effect to hold a community referendum at the request of the band council concerned. In the event that the majority are in favour, the Governor in Council may issue a proclamation permitting the possession of intoxicants on the reserve in question. Where the third stage is not in effect in a province, referendums may still be held but only if the province concerned does not object to the band council's request for a referendum within 60 days after it has been notified of the request. Should the band obtain the right of on-reserve possession following the referendum, its members would, in so far as the Indian Act is concerned, also have the right to purchase and possess intoxicants off reserves in accordance with the laws of the province. A number of bands in British Columbia have obtained the right of possession both on and off their reserves until the latter procedure.

SELF-GOVERNMENT

The original political organization of the Indians varied considerably from tribe to tribe. It was usually very simple, involving only the recognition of a chief and headmen or councillors, either hereditary or chosen for their prowess or ability. As early as 1869, provision was made in the Indian Act for self-government on reserves in accordance with democratic principles. This provision has been broadened from time to time to meet the needs of Indian communities.

The Indians now elect band councils consisting of a chief and councillors who correspond to the local elective officers in rural municipalities. However, Indian bands who wish to adhere to their tribal system of choosing chiefs and councillors may continue to do so and exercise the same powers as an elected council. The councils are concerned with local conditions affecting members of the band and work closely with the superintendents. They may make by-laws with regard to various matters of a local nature on the reserves and also exercise control over the expenditure and management of their funds and property. Formerly only males had the right to vote in elections, but under the new Indian Act the right to vote has been extended to include women also. Indian women are taking a keen interest in band affairs and a number have been elected to office.

FINANCES

The Indian Trust Fund is made up of capitalized annuities and moneys derived from Indian assets.

Revenue to the fund began with the settlement of Upper Canada, and the surrender for sale of Indian lands in that province. Today, major items of income to the fund are derived from leases of Indian reserve lands, timber sales, the leasing of oil and gas exploration rights, sale of gravel and sales of surplus portions of reserves which have been surrendered for sale by the interested bands of Indians.

Before 1859, moneys were held for investment in commercial securities, municipal debentures and so on. In that year, the Government assumed the investments because investments in securities and debentures involved possible loss to the fund and security was of prime importance.

With very few exceptions, suggestions for expenditures originate with the chiefs and councils of the respective bands. It should be remembered that the Trust Fund is not owned in common by all Indians in Canada, but belongs to various bands. Some bands have as much as a million dollars, others have only a few hundred, while a considerable number of bands have no moneys at all and, therefore, no interest in the Trust Fund. This seeming inequality arises from the fact that some bands chose reserves rich in agricultural land, timber or minerals, and have been able to dispose of their surplus assets, depositing the proceeds in their Trust account. Other bands chose reserves because of their suitability for hunting and fishing and these often lacked other resources from which revenue could be derived.

Expenditures from the moneys of a band held in the Trust Fund are permitted for any purpose considered in the interest of the band or the individual members thereof.

When an Indian chooses to leave his reserve, thus giving up his Indian status with the rights and privileges guaranteed by the Indian Act, he is paid a <u>per capita</u> share of the Trust Fund of the band to which he belongs.

EDUCATION

In Canada, education is generally under the jurisdiction of the provinces, but education of Indians is the responsibility of the Federal Government.

The educational programme is carried out through the operation of schools for Indian children. A number are also educated in non-Indian schools under provincial or private auspices, the cost of tuition then being assumed by the Federal Government.

In order to provide educational facilities for children who cannot attend school in association with other groups and to meet particular problems, the Government has established four types of schools.

On the majority of reserves, day schools are established to provide an education for children who can attend from their homes.

Residential or boarding schools are operated, under the auspices of various religious denominations, to care for orphaned children, children from broken homes or those who, because of isolation or the migratory way of life of their families, are unable to attend day schools.

Neither of these schools adequately serve the migratory population, particularly in the far North. In order to meet the unusual problems presented by these groups, seasonal schools have been established at places where migratory families gather during the year.

A fourth type is designed to meet the needs of children confined to hospitals. Teachers are employed to give instruction to children in the hospitals operated under the jurisdiction of the Directorate of Indian and Northern Health Services of the Department of National Health and Welfare.

Arrangements are also made for the education of Indians in other hospitals and in sanatoria. Such instruction is not restricted to Indians of school age and an effort is made to give training to both children of pre-school age and adults.

Wherever possible, education of Indian children in association with non-Indians is encouraged, and the Indian Affairs Branch has entered into agreements with provincial authorities for such joint education. These agreements may include provision for grants for capital expenditures for facilities required by the admission of Indian children.

TEACHERS

In common with other schools throughout Canada, Indian schools are experiencing much difficulty in securing enough qualified teachers. Indian boys and girls are encouraged, through financial assistance, to enter the teaching profession to serve their own people.

Teachers engaged by the Indian Affairs Branch enjoy a uniform salary schedule that compares favourably with those in effect in the provincial schools across Canada. When engaged in the Indian day schools, most teachers receive furnished and heated quarters for which a moderate pay deduction is made. Teachers employed by the Branch participate in all Civil Service welfare benefits, and if they meet the requirements, may, after two years of satisfactory service, be classified as Civil Servants for superannuation purposes.

SOCIAL WELFARE

Welfare services and social benefits to meet the needs of dependent Indian individuals and families are provided by the Indian Affairs Branch, by other departments of government, and by private organizations.

Indians are paid Family Allowances, Old Age Security, Old Age Assistance, Disability and Blind Persons' Allowances, and, in Ontario and Quebec, Mothers' Allowances are available to needy Indian mothers. A relief programme operated by the Branch provides assistance for those who do not qualify for allowances administered by the provinces, but whose circumstances are such that they are unable by their own efforts to maintain themselves and their families.

In matters pertaining to welfare of children, provincial legislation governing apprehension, guardianship, and adoption applies to dependent, delinquent, and neglected Indian children. Authority to take legal action to protect Indian children from neglect and abuse is within the jurisdiction of organizations established for this purpose in non-Indian communities. Branch participation in the child-welfare field include assistance to parents in improving home conditions either directly or by payment for services of a child caring organization, and payment of maintenance costs for foster home and institutional care.

In the field of rehabilitation, programmes have been organized and others are being developed whereby handicapped Indians will be helped through training and selective placement towards the fullest employment of their abilities. Special rehabilitation projects are being organized, particularly for ex-tuberculous young Indian men and women, to assist those wishing to do so to become established in non-Indian communities in employment that does not overtax their physical abilities.

The number of community projects being undertaken on reserves under the leadership of band councils in co-operation with other organized groups reflects a growing awareness among Indians of community needs and community responsibilities. Trends in this direction are encouraged and supported by the Indian Affairs Branch. Leadership-training courses are conducted under Branch auspices, and Indians are helped to take part in similar types of programmes sponsored by other organizations. A number of organized groups are taking an active interest in the advancement of health, education, and welfare amongst Indians.

Indian Homemakers' Clubs, patterned on the Women's Institute, are established on many reserves. In addition to meeting socially and learning improved methods of homemaking, these groups of women take an active part in community life.

In the field of housing, financial assistance is provided for the construction of new houses and for repairs. This supplements rather than replaces the contributions of the Indians themselves, in the form of labour, materials and money, and the assistance available to them from their Indian Band Funds, Veterans' Land Act Grants and other sources. In recent years, for every dollar contributed by the Indian Affairs Administration there has been on average an equal contribution from the Indian householders and the other sources noted above. Since the 1958-59 fiscal year, the amount of assistance provided has been substantially increased.

ECONOMIC DEVELOPMENT

A great many Indians still depend on the traditional pursuits of trapping, hunting and fishing for a livelihood. New techniques of development and management have increased the production of fur-bearing animals in recent years, particularly the introduction of long range programmes in co-operation with the various provinces. More recently, programmes have been introduced to foster greater participation by Indians in the commercial fishing industry, and to encourage domestic fisheries on a co-operative basis as a means of providing subsistance food. Earnings from the wildlife and fisheries resources are augmented seasonally, by such pursuits as guiding and the gathering of wild rice and other wild crops.

The traditional arts and crafts are still producing part-time employment for Indians in many areas. Handicraft items include moccasins, gloves, jackets, and mukluks in northern and non-agricultural hunting areas, potato baskets in the Maritimes and totem carvings, carved masks, fire baskets and Cowichan sweaters on the West coast. These provide an important supplementary income for the Indian families producing them.

Agriculture ranks next to trapping, hunting and fishing in importance, particularly in the Prairie Provinces, Southern Ontario and parts of British Columbia. Indians engaged in agriculture are assisted and encouraged by supervision and practical training and by the provision, where necessary, of breeding stock, seed grain and, in some cases, farm machinery; but the tremendous change in techniques since the Second World War has left many of them in a relatively unfavourable position and emphasis is now being placed on the introduction of cattle-raising and other mixed-farming operations to supplement or replace grain growing in the Prairie Provinces.

Apart from these occupations, the remaining Indians of working age are employed for the most part in forestry, construction, industrial domestic and professional fields.

Indians residing on reserves do not usually have ready access to sources of credit available to other citizens. To fill the need, the Indian Affairs Branch administers a Revolving Loan Fund, in the amount of $1 million, to provide loans for a wide variety of purposes, including all types of agricultural machinery and activity, fishing and forestry equipment, and similar projects which will improve the economic position of the Indian borrower.

The movement of Indians from reserves and their successful integration into non-Indian communities is a matter of increasing concern; and, in view of the limited resources and employment opportunities on reserves and the rapidly increasing Indian population, this trend will inevitably be accelerated as time passes. To provide for a more orderly movement to urban centres, and to ensure as far as possible that the Indians concerned are equipped to obtain employment and meet the problems of modern-day living, the Individual Placements Programme was formally established in 1957. Under this programme, the facilities of the National Employment Service are utilized to the greatest possible extent in placing selected Indians in employment. A rural placements programme has also been undertaken which co-operates with other agencies and government departments in assisting or placing Indian individuals or groups in employment, particularly in the Alberta beet fields and in northern and other remote areas where extensive new developments are under way.

GENERAL

The medical care of Indians and Eskimos is within the jurisdiction of the Directorate of Indian and Northern Health Services, Department of National Health and Welfare. Eskimo affairs generally are the direct responsibility of the Northern Administration Branch, Department of Northern Affairs and National Resources.

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No. 68

THE INDIANS OF CANADA

(Reprinted from the Canada Year Book 1969.)

More than 230,900 Canadians are registered as Indians by the Indian Affairs Branch of the Department of Indian Affairs and Northern Development. Registered Indians include all persons descended in the male line from a paternal ancestor of Indian identity, who have chosen to remain under Indian legislation. They are grouped, for the most part, into 557 bands and occupy or have access to 2,276 reserves or settlements having a total area of 6,051,327 acres.

Administration

Pursuant to the British North America Act, the administration of Indian affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada in 1867. From January 1950 to December 1965, Indian affairs were the responsibility of a Branch of the Department of Citizenship and Immigration. By legislation a new department was formed, in which the Indian Affairs Branch joined with part of the Department of Northern Affairs and National Resources to become the Department of Indian Affairs and Northern Development.

The Indian Affairs Branch is composed of a headquarters staff at Ottawa, eight regional offices, 16 district offices and 50 field agencies. Attached to the headquarters and regional and district offices are specialists in such matters as education, economic development, community development, resource management, social welfare, and engineering and construction. Liaison is maintained with the Medical Services Branch of the Department of National Health and Welfare, the federal agency concerned with the medical care of Indians.

It is the primary function of the Indian Affairs Branch to assist the Indians to administer their affairs in a manner that will enable them to participate fully in the social and economic life of the country. Underlying administrative duties of the Branch include the management of Indian reserves and surrendered lands, the administration of band funds, estates management, enfranchisement of Indians and the administration of treaty obligations.

Five main objectives are being pursued in an attempt to assist the Indians in adjusting to the pace of social and economic growth: (1) An accelerated program in education places more emphasis on vocational training, retraining for employment, assistance in placement, adult education, kindergartens and a greater use of provincial schools. (2) The program of industrial and resource development, which in the beginning was a program dependent mainly on the traditional resources of fur, fish, forestry and farming, now affords opportunities in new areas through loans, advisory services and other incentives to foster commercial development and other forms of economic endeavour on and off reserves and to facilitate the relocation of Indian people to places where full employment is available. (3) A $112-million program of reserve improvement has been instituted to provide better housing, water and sewerage systems, electrification and roads. (4) Indian bands, where possible, are being encouraged to operate on the same basis as local municipalities and, where required, grants are given to meet some of the financial needs of the Indian community. (5) Provincial services to Indians are being extended; where bands so desire, discussions are held with the province concerned with respect to the provision of services additional to those already in effect.

Eight Regional Indian Advisory Councils established by the Department provide machinery for effective consultation with representatives of the Indian people. Each Council is composed of eight to 12 Indians selected by the Indians in the region, as well as representatives of Indian organizations. The consultation procedure is used to interpret federal policies to the Indians and to obtain the views of the Indians on matters of policy, proposed legislation, federal-provincial agreements, new programs and proposed program changes. The National Indian Advisory Board brings together Indians representing all regions. The Board is made up of 18 representatives named by the Regional Councils on a population basis. Its function is to advise the Department on matters of national importance to the Indian people as distinct from matters of regional interest. In addition, federal-provincial co-ordinating committees are in operation in most provinces. They meet fairly regularly and perform an important function in guiding the plans and programs of the federal and provincial governments in relation to Indians and in establishing effective liaison between the governments and a better understanding of their respective objectives, policies and programs.

Education

The key to continued progress in Indian education is the active participation of the Indians themselves through their school committees and membership on school boards, strengthened by ever-increasing support from governments below the federal level and from professional groups specifically concerned with classroom instruction of Indian pupils. The Indian Affairs Branch maintains and operates a number of schools for Indians, but 34,635 of the 66,217 Indian elementary and secondary school pupils now attend non-federal schools, attendance in which has been arranged for the most part through agreements between the Branch and individual school-boards. In Manitoba, British Columbia and New Brunswick, however, under agreement with the respective provincial governments, a uniform tuition fee is paid by the Branch for Indian pupils attending schools under the jurisdiction of the

province. Federal financial assistance for pupils attending non-federal schools varies from payment of tuition fees to full maintenance. Promising senior students are awarded scholarships to attend university or vocational school and scholarships are given to those who show promise in the arts.

Federal schools for Indian children are in operation in all provinces except Newfoundland and school residences care for orphaned children, children who come from broken homes and for those who, because of isolation or for other reasons, are unable to attend local schools. Standard classroom supplies and authorized textbooks are used in federal schools, which follow generally the curriculum of the province in which they are located.

A two-year kindergarten program has been instituted to give a head start to children who will receive their classroom instruction in a language other than their mother tongue. It has developed very rapidly and it is anticipated that all five-year-olds will be enrolled in school by 1971 and all four-year-olds by 1973. The current kindergarten enrolment is about 4,500.

Resources and Industrial Development

Some 180,000 of Canada's 230,902 Indian people live on reserves or Crown lands and depend on renewable resources for much of their income. The Indian Affairs Branch is steadily expanding its economic and resource utilization programming to help them improve their methods and develop new resource potential through loans, grants, technical advice and specialized training. The Branch also works, both formally and informally, in close co-operation with other federal departments, provincial governments and private organizations to establish wide-ranging resource-development programs for Indian people. The latest program to be introduced (late 1968) is designed to assist Indian fisherman on the British Columbia coast to improve or replace their vessels and equipment and to provide them with training in the latest techniques of fish harvesting. Over the next five years the plan should benefit about 1,200 fishermen at a cost of approximately $4,600,000.

Continued interest in Canadian wild furs on world markets encouraged 9,194 Indian trappers to harvest 86,430 pelts valued at $2,876,507 in the 1967-68 season. Also, about 4,500 Indian fishermen harvested more than 10 million lbs. of fish for domestic and foreign markets, in addition to their own requirements. Indian farmers numbered 2,128 of whom 828 have been given financial assistance for capital improvements, purchase of equipment, breaking of land and operation expenses. Under the rotating herd program, which includes 7,431 animals in herds of up to 50 animals, some 307 farmers have received herds.

Forestry operations by Indian people in 1967-68 produced a total of 332,131 cunits[1] valued at $6,247,321, of which 230,297 cunits were softwood (consisting of sawlogs 148,650, pulpwood 39,277, fuelwood 38,144, poles and piling 1,183 and other wood products such as bolts, mining timber, etc. 3,043) and 101,824 cunits were hardwood, two-thirds of which was fuelwood. Approximately 284,000 trees were planted on 545 acres of reserve lands for reforestation purposes.

(1) A unit of stacked wood containing 100 cu. feet of solid volume within its outside dimensions.

Up to mid-1968, forest inventory and management plans were made for 61 Indian reserves and forest-fire protection agreements covering reserve lands were negotiated or renewed with all provinces except Quebec and Nova Scotia. Another 54 reserves had been examined by consulting companies to identify potentials for land and resource development.

Indians own and operate 17 tourist and outfitting establishments; these provide employment for 209 individuals, some of whom are included among the 519 licensed Indian guides in Canada. In addition, Indians own and operate 22 campgrounds, 23 picnic sites, eight marinas, nine beaches, 43 cottage subdivisions, ten tourist accommodations and 22 operations that are combinations of such facilities.

There are approximately 5,983 Indians producing crafts, 66 of whom operate their own retail outlets; the value of their output exceeded $1,289,000 in the year ended March 31, 1968. About 7,400 Indian people are actively involved in 136 co-operatives and credit unions; sales of producer co-operatives in 1967 exceeded $5,600,000.

In 1967-68, 613 permits and leases, covering 1,966,351 acres of land, were in effect on 110 reserves in Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia for exploration and production of oil and gas. Revenue derived for Indian bands through bonuses, rentals and royalties amounted to $4,200,572 and revenue derived from mining, including the sale of sand and gravel, amounted to $231,245.

Community Development

The community development program launched by the Indian Affairs Branch in 1964 has led to much closer involvement of the Indian people in the management of their own affairs. In their efforts to accept such responsibility, many Indian bands across the country are developing their own municipal-type administration. Fifty-eight (24 of Indian status) community development workers hired by the Indian Affairs Branch and 33 hired by provincial governments are assisting and encouraging the Indian people to plan their own future. A grants-to-bands program enables bands to gain program experience and assists them financially; expenditure on the program increased from $71,065 in 1965 to $507,602 in 1967-68.

Federal-provincial community development agreements to extend provincial services to the Indian people exist with Ontario and Alberta and such services are supplied through informal arrangements in other parts of Canada. Costs are shared on a population basis where both Indians and non-Indians are involved.

A program to develop and perpetuate Indian culture through encouraging Indian fine arts and crafts, literature, dancing, folk songs and related activities has been conducted since 1965. Incentives include grants, subsidies and scholarships to individuals, groups and organizations for the development of their creative and performing talents.

The Federal Government assists in the physical development of Indian communities by providing technical services, through the Engineering and Construction Division of the Indian Affairs Branch, for community planning on Indian reserves, housing accommodation, water and sanitation services, electrification and construction and maintenance of roads and bridges, etc. Community planning service is given either directly through the efforts of the community concerned, indirectly through consultant planners or through provincial or regional planning offices. In 1966 an expenditure of $112 million was allotted for the physical improvement of Indian reserves.

Three housing programs on reserves and one off-reserve program are under way, summarized as follows:

1. Subsidy housing program	Direct subsidy by the Federal Government.
2. Band-administered housing program ...	Indian councils may, by band council resolution, request authority to administer federal appropriation, either as the sole source of financing or in conjunction with band funds.
3. Indian on-reserve housing program ...	Individual housing loans from the Central Mortgage and Housing Corporation as a sole source of financing or in conjunction with federal subsidy.
4. Off-reserve housing program	Indians living away from reserves may secure mortgage funds from the Central Mortgage and Housing Corporation or approved lenders in conjunction with forgiveable ten-year second-mortgage funds from the Indian Affairs Branch.

There were 2,005 houses constructed on Indian reserves in the year ended March 31, 1968.

In recent years, emphasis has been placed on overcoming the isolation of many reserves by the building of roads to facilitate movement between Indian and non-Indian communities, the upgrading of roads on reserves adjacent to urban communities, the participation of Indian children in off-reserve school programs, the commuting of Indian people to and from centres of employment, and the development and marketing of reserve resources. Where economically feasible, electric power is being extended to all Indian reserves and potable water and adequate sanitation facilities are also assured on all reserves.

Welfare

The Indian Affairs Branch administers programs and financially supports and promotes expansion of those administered by provincial organizations

to meet welfare needs of Indian individuals and families. Federal-provincial agreements are pursued in collaboration with the Department of National Health and Welfare to give effect to Part II of the Canada Assistance Plan in order that Indian people may participate in the broad range of welfare programs established in the provinces. In Ontario, provincial social assistance and child-welfare programs are available to Indian communities through implementation of an agreement which provides for the extension of the province's total welfare program. Services for the protection and care of dependent and neglected Indian children are provided through agreements with the Yukon Territory, the Provinces of Manitoba and Nova Scotia and an arrangement with British Columbia. In provinces where no formal arrangement exists, child-welfare authorities intervene in serious neglect situations at the request of the Indian Affairs Branch.

Dependent Indians and certain categories of non-Indian persons living on the reserves are given social assistance by the Indian Affairs Branch. Standards established in the provinces apply in assessing the need and determining the amounts of assistance granted to individuals and families.

Financial responsibilities assumed by the Indian Affairs Branch for the welfare of Indians include maintenance of children in foster homes and institutions, services provided by accredited child-welfare organizations, assistance to maintain elderly and physically-incapacitated adults in institutions and boarding homes and to enable physically-handicapped Indians to participate in rehabilitation programs. Welfare programs administered by other governmental organizations for which Indians are eligible include: family allowances, youth allowances, old-age security and guaranteed income supplement administered by the Department of National Health and Welfare; old-age assistance and blind and disabled persons' allowances administered by the governments of British Columbia, Manitoba, Quebec, Nova Scotia and Prince Edward Island; family benefits in Ontario; needy mothers' allowances in Quebec; and social assistance pursuant to the Nova Scotia Social Assistance Act, Pt. I.

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Appendix 1. Indian Land in Reserves and Settlements and Number of Bands, by Province, as at March 31, 1968

Province or Territory	Bands	Reserves	Settlement	Total	Total Area
	No.	No.	No.	No.	acres
Prince Edward Island	1	4	---	4	2,741
Nova Scotia	12	38	---	38	25,571
New Brunswick	15	22	---	22	37,584
Quebec	39	26	13	39	188,198
Ontario	113	166	5	171	1,541,240
Manitoba	51	103	---	103	541,649
Saskatchewan	67	123	---	123	1,257,163
Alberta	41	92	4	96	1,607,625
British Columbia	190	1,625	---	1,625	842,527
Yukon Territory	15	---	26	26	4,876
Northwest Territories	13	---	29	29	2,153
Total	557	2,199	77	2,276	6,051,327

Appendix 2. Indian Population, by Province, Selected Years 1949-67

Note: Figures for 1949, 1954 and 1959 resulted from a departmental census taken every five years until 1959; those for 1961-67 are taken from data kept for administrative purposes by the Indian Affairs Branch.

Province or Territory	1949	1954	1959	1961	1963	1965	1966	1967
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island	273	272	341	348	374	393	399	409
Nova Scotia	2,641	3,002	3,561	3,746	3,935	4,009	4,183	4,287
New Brunswick	2,139	2,629	3,183	3,397	3,629	3,824	3,912	4,039
Quebec	15,970	17,574	20,453	21,793	23,043	24,446	25,033	25,650
Ontario	34,571	37,255	42,668	44,942	47,260	49,556	50,568	51,731
Manitoba	17,549	19,684	23,658	25,681	27,778	29,996	30,994	32,227
Saskatchewan	16,308	18,750	23,280	25,334	27,672	30,086	31,360	32,579
Alberta	13,805	15,715	19,287	20,931	22,738	24,587	25,434	26,440
British Columbia	27,936	31,086	36,229	38,616	40,990	43,250	44,205	45,152
Yukon Territory	1,443	1,568	1,868	2,006	2,142	2,292	2,337	2,477
Northwest Territories ...	3,772	4,023	4,598	4,915	5,235	5,569	5,739	5,911
Totals	136,407	151,558	179,126	191,709	204,796	218,098	224,164	230,902

Appendix 3. Enrolment of Indian Pupils in Elementary and Secondary Schools Classified by Type of School and by Grade, School Years Ended 1964-68

Year and Type of School	Grade				Special	Absent from Reserve (1)	Total
	Pre-1	1-6	7-8	9-13			
	No.	No.	No.	No.	No.	No.	No.
1963-64	3,897	35,453	6,161	4,065	770	4,575	54,921
Federal	3,575	24,791	3,089	750	506	--	32,711
Non-federal	322	10,662	3,072	3,315	264	4,575	22,210
1964-65	4,027	36,229	6,758	4,761	804	4,686	57,265
Fe Federal	3,422	24,067	3,292	768	509	--	32,058
Non-federal	605	12,162	3,466	3,993	295	4,686	25,207
1965-66	3,660	38,929	7,107	5,220	1,013	5,466	61,395
Federal	3,093	24,566	3,203	716	462	--	32,040
Non-federal	567	14,363	3,904	4,504	551	5,466	29,355
1966-67	3,830	40,408	7,453	5,510	1,081	6,157	64,439
Federal	2,939	24,672	3,093	427	210	157	31,498
Non-federal	891	15,736	4,360	5,083	871	6,000	32,941
1967-68	4,531	40,188	7,926	5,967	1,305	6,300	66,217
Federal (2)	3,513	24,524	2,879	307	359	--	31,582
Non-federal (3)	1,018	15,664	5,047	5,660	946	6,300	34,635

(1) Pupils (and parents) living off the reserve in communities with educational facilities usually attend non-federal schools but school records are not maintained by the Indian Affairs Branch.

(2) Includes 1,231 non-Indians pupils.

(3) Excludes 2,169 Yukon and Northwest Territories pupils.

Appendix 4. Enrolment of Indian Pupils in Elementary and Secondary Non-Federal Schools Classified by Grade and by Province, School Year 1967-68

(Exclusive of the Yukon and Northwest Territories)

Grade	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Pre-grade 1	--	43	--	116	277	100	85	107	290	1,018
Grade 1	2	33	30	196	447	384	761	619	721	3,193
2	2	32	28	168	450	367	543	478	533	2,601
3	--	44	60	191	456	274	453	438	593	2,509
4	1	31	39	204	515	286	440	453	578	2,547
5	1	37	75	270	562	302	390	378	509	2,524
6	1	28	68	301	455	245	364	330	498	2,290
7	7	76	59	325	592	234	353	441	561	2,648
8	4	49	58	328	453	144	261	311	791	2,399
9	--	49	46	192	784	211	279	337	579	2,477
10	2	33	42	152	527	224	158	182	386	1,706
11	--	14	16	89	246	116	89	127	219	916
12	1	3	10	7	155	50	67	107	130	530
13	--	--	--	--	23	--	--	--	8	31
Special	--	5	2	22	315	75	84	118	325	946
Absent from reserve	30	110	60	500	2,600	700	700	400	1,200	6,300
Totals	51	587	593	3,061	8,857	3,712	5,027	4,826	7,921	34,635

Appendix 5. Indian Students in Post-Secondary and Vocational Training, by Province, School Year 1967-68

(Exclusive of the Yukon and Northwest Territories)

Classification	P.E.I., N.S. and N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.
University	17	45	25	10	19	26	23	165
Teacher training	--	6	7	--	--	--	2	15
Nurse's training	3	4	9	3	1	3	5	28
Vocational	26	171	592	315	309	155	513	2,081
Upgrading	23	159	1,091	275	370	113	193	2,224
Totals	69	385	1,724	603	699	297	736	4,513